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India-US Defence Industrial Cooperation:

The Way Forward

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ICRIER Wadhwani Programme of Research Studies on India-US Relations and Policy Issues

The ICRIER Wadhwani Programme of Research Studies on India-US Relations and Policy Issues, established in September 2011, aims to promote policies that advance India's emergence as a major economy and unlock the strategic potential of India-US relations for the 21st Century.

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- **Top Right:** The aircraft carrier USS Ronald Reagan (CVN 76) and ships from the Ronald Reagan Carrier Strike Group and the Indian navy transit the Pacific Ocean during exercise Malabar 2011. U.S. Navy photo by Mass Communication Specialist 3rd Class Kevin B. Gray/Released, April 10, 2011, *Wikimedia Commons*, available at: http://commons.wikimedia.org/wiki/File:US_Navy_110410-N-IC111-115_The_aircraft_carrier_USS_Ronald_Reagan_(CVN_76)_and_ships_from_the_Ronald_Reagan_Carrier_Strike_Group_and_the_Indian_nav.jpg
- **Centre:** M777 Light Towed Howitzer in service with the 10th Mountain Division in support of Operation Enduring Freedom, Logar Province, Charkh District, Afghanistan, February 7, 2009, *Wikimedia Commons*, available at: http://en.wikipedia.org/wiki/File:M777_Light_Towed_Howitzer_1.jpg
- **Bottom Left:** A U.S. Army AH-64 Apache attack helicopter prepares to depart Bagram Air Field, Afghanistan. Source: Air Force photo/Tech. Sgt. Matt Hecht, January 7, 2012, *The US Army,* available at: https://www.flickr.com/photos/soldiersmediacenter/6668518895/
- **Bottom Right:** A Michigan Air National Guard C-130E Hercules aircraft from 171st Airlift Squadron dispatches it's flares during a low-level training mission over Lake Huron, Michigan, March 16, 2006, *Wikimedia Commons*, available at: http://commons.wikimedia.org/wiki/File:C-130E_Hercules_dropping_flares.jpg?uselang=en-gb

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FOREWORD

The ICRIER Wadhwani Chair in India-US Policy Studies, established in 2011 with the funding support of the Wadhwani Foundation, has been conducting research on key areas of India-US relations in order to promote a robust strategic partnership between the two nations.

Building defence industrial capability through the induction of the highest technologies extant is critical for India's strategic autonomy. As matters stand, after decades of underperformance by its Defence Public Sector Units (DPSUs) and given the unfulfilled promise of the Defence Research and Development Organisation (DRDO), only one-third of India's defence hardware requirements are domestically produced.

In order to stem the steady erosion of India's defence preparedness and deterrent capacity, the new Government of Prime Minister Narendra Modi will need to fast track long delayed acquisitions, streamline procurement processes, and build incentives for the indigenisation of production in the medium term by going beyond DPSUs to involve the private sector, both domestic and foreign, in defence manufacturing.

We are pleased to bring you the ICRIER Wadhwani Chair's latest Policy Report "India-US Defence Industrial Cooperation: The Way Forward", which examines the key constraints Indian policymakers need to address in order to progress domestic defence manufacturing. It is our hope that this initiative will provide timely inputs to India's new Government and help move the India-US defence trade and technology initiative to a higher trajectory.

I would like to express my appreciation for Chair Professor H.K. Singh's efforts in directing this research study and compliment him and his co-authors, Sanjay Pulipaka, Gurmeet Kanwal, and Sylvia Mishra for the high quality of this report.

Rajat Kathuria
Director & Chief Executive
ICRIER, New Delhi
May 30, 2014

Chapter 1

THE MISSING MILITARY-INDUSTRIAL COMPLEX

Hemant Krishan Singh & Sanjay Pulipaka

As Asia grapples with the management of strategic change and related security challenges, countries across the region - from India to Japan - are strengthening their defence capabilities. Meanwhile, despite periodic changes and updates of its defence production and procurement policies to try and build indigenous capacity, India's ministry of defence (MOD) has been largely unable to remedy severe constraints in the country's defence industrial base. Around two-thirds of India's defence hardware requirements are still being imported. There are endemic delays in domestic production programmes while costs continue to escalate, seriously undermining India's defence preparedness. This is an area of vulnerability that India can ill afford.

Symptoms of this deficiency abound. Even after three decades of development, the serial production of the Tejas Light Combat Aircraft (LCA) is still some years away. Russian-origin SU-30MKI fighters basically continue to be assembled, not manufactured, by Hindustan Aeronautics Ltd (HAL). The long-awaited medium multi-role combat aircraft contract remains bogged down over modalities for co-production of the Rafale. In contrast, as pointed out by former Air Chief N. A. K. Browne, "the streamlined induction and speedy operationalisation of our new assets like Mi-17 v5, C-130J, Pilatus PC-7 and C-17 aircraft have afforded us unprecedented response capabilities." Sadly, outright imports seem to work, with timely deliveries and without cost overruns.

Even in the middle of a prolonged diplomatic impasse with the US, it is significant that India concluded a contract worth $1.01 billion for the acquisition of six additional C-130J "Super Hercules" aircraft on December 27, 2013. This may be welcome for the Indian Air Force (IAF) but gives rise to concerns in some quarters about "dependence" on the US. However, a growing defence trade and technology partnership with the US is hardly likely to push India into defence dependence. If that were indeed the case, then India's defence relationship with the erstwhile USSR and now Russia would have to shoulder much of the blame. According to the Stockholm International Peace Research Institute (SIPRI), Russia accounted for 82 per cent of Indian arms imports during 2006-10. Decades of defence ties with Russia have not helped kick-start India's domestic defence industry, and can only be described as a patron-

client relationship. Therefore, holding up the nascent India-US defence relationship as a signal of India's dependence on international players would be a wrong diagnosis. The problem lies elsewhere.

There are a number of structural constraints bedevilling India's domestic defence industry. In the past, India shunned private participation in its defence industry, while Cold War dynamics restricted defence industrial interactions with the West. Defence Public Sector Units (DPSUs) emerged as the principal players, and there are today more than 50 Defence Research and Development Organisation facilities, 41 ordnance factories and nine DPSUs. The fact that this combine is still struggling to meet the growing needs of the Indian defence forces because of inherent limitations speaks for itself. Attempts at indigenisation have been largely rhetorical and less than satisfactory, to say the least.

Ambassador Hemant Krishan Singh speaking at the workshop on "India-US Defence Cooperation: The Way Forward," hosted by the ICRIER Wadhwani Chair in New Delhi on December 9, 2013. Also in the picture is Dr. Rajat Kathuria, Director & CE, Indian Council for Research on International Economic Relations (ICRIER)

It was only in 2001 that the defence industry was finally opened up for the Indian private sector, but procurement policies have remained heavily skewed in favour of seemingly overburdened but chronically under-performing DPSUs. The latest iteration of the Defence Procurement Procedure 2013(DPP) mandates purchases from an Indian maker as the most preferred option, which could potentially be made to work to the advantage of the Indian private sector, which still lacks operational experience, technology and resources. However, moving from the monopoly of DPSUs to the oligopoly of a few Indian private sector companies would not be a sustainable model either. What India requires is a vibrant defence industrial base with multiple domestic and international players engaged in healthy partnerships as well as competition to provide the best weaponry for the armed forces.

In a span of two decades, India has emerged as a globally competitive hub of automotive manufacturing, and it has been suggested that appropriate policy frameworks can bring about similar transformations in the Indian defence industry through growing private sector participation. However, it should be noted that the defence industry, unlike the automobile sector, is a monopolistic market with the government as the only buyer. This structural constraint implies that there is a greater degree of business unpredictability for private players. It is not surprising, therefore, that Indian private companies, while evincing interest, still seem to be hesitant to incur the massive capital expenditure that is required in the defence industry.

Policy measures are needed to address this particularity. Categorising companies as "designated vendors" for defence production in certain areas can give confidence to Indian private players. Developing synergies between civilian and defence needs and harnessing dual-use technologies to serve both can ensure a wider customer base. Furthermore, India needs a clearly articulated defence export policy, providing access to international markets for domestic and foreign companies operating out of India. Multinational corporations bringing in foreign direct investment (FDI) should be able to export weapons systems or components manufactured in India. China's defence industry has made great strides and is already the world's fifth largest defence exporter.

For the Indian private sector to manufacture defence products using high-end technologies, collaboration with leading global defence manufacturers and their vendor base is essential. Enhanced FDI limits, which also mandate technology transfer, collaborative research and co-development, can incentivise foreign participation in developing India's defence industrial base. As matters stand, under the current FDI cap of 26 per cent, India has received a meagre $4.94 million in defence sector FDI inflows over the past decade. FDI should preferably be permitted up to 100 per cent. It is remarkable how we are happy to import foreign-made defence equipment without realising the need to create a conducive environment for its production within India.

Along with these systemic and regulatory reforms, addressing bureaucratic delays and bottlenecks in MOD is another imperative. With the defence budget under increasing stress following India's economic downturn, long-projected reforms such as a Chief of Defence Staff are key to establishing well-considered and balanced priorities for defence acquisitions.

Implementation of India's defence modernisation plans has continually fallen behind. India's MOD must display a stronger sense of strategic purpose in fostering a diversified defence industrial sector, with DPSUs co-existing alongside a multiplicity of private sector players, both domestic and foreign.

MOD would also do well to speedily take forward proposals for joint collaboration with the US that have been on the table since September, 2013. It would be good to test former US Deputy Defence Secretary Ashton Carter's pledge to provide India with "all the capabilities it needs to meet its security requirements", and the affirmation in the bilateral joint declaration concluded in September 2013, that "the United States and India share common security interests and place each other at the same level as their closest partners".

If India aspires to genuine strategic autonomy, building defence industrial capability through the induction of the highest technologies extant would be a good place to start.

Finally, the clear pronouncements related to defence industrial policy made by India's new Prime Minister, Narendra Modi, set the stage for a reformist re-orientation of defence production and procurement. These include transparent and expeditious handing of procurements to ensure that defence preparedness is not compromised; indigenisation of production in the medium term through appropriate incentives; and going beyond the DPSUs and DRDO to the Indian private sector for defence manufacturing. Fast tracking these ideas through concrete measures, which the Modi government appears to have initiated in its very first week in office, will go a long way towards bolstering India's defence.

Chapter 2

INDIA-US DEFENCE TRADE AND TECHNOLOGY INITIATIVE: MOVING TO A HIGHER TRAJECTORY

Gurmeet Kanwal

Contrary to most of the commentary that has appeared in the Indian media, the Barack Obama-Manmohan Singh summit meeting at the White House on September 26, 2013, was unexpectedly successful in setting the Indo-US strategic partnership on the path to a higher trajectory in the long term. The joint statement issued after the meeting and the Joint Declaration on Defence Co-operation endorsed by the two leaders have the potential to perceptibly shape the future contours of the relationship to mutual benefit "in the areas of security co-operation, bilateral trade and investment, energy and environment, higher education, and global architecture."

Every summit meeting cannot be expected to deliver an agreement equivalent to the spectacular strategic impact of the July 2005 Indo-US Civil Nuclear Co-operation Agreement and the equally important Defence Framework Agreement that had preceded it by a few weeks. The September 2013 meeting between the two leaders convincingly dispelled the notion that the relationship had plateaued out or that it had begun to stagnate or drift. There was a meeting of minds on several key bilateral issues. While the US is already India's largest trading partner with bilateral trade close to US$100 billion annually, the two leaders agreed that "there are no insurmountable impediments to bilateral trade increasing an additional five-fold." They reiterated their commitment to concluding a "high-standard Bilateral Investment Treaty (BIT) that will foster openness to investment, transparency, and predictability." In the civil nuclear power sector, they expressed their satisfaction at the announcement that Nuclear Power Corporation of India Ltd (NPCIL) and US nuclear company Westinghouse have concluded a preliminary contract to build a nuclear power plant in Gujarat in India.

Recognising the contribution of Indian peace-keepers to the maintenance of peace and stability under the aegis of the United Nations (UN), President Obama said, "The United States looks forward to a reformed UN Security Council (UNSC) with India as a permanent member." The two leaders reaffirmed

their desire to remain committed to contribute to peace, stability and development in Afghanistan during the difficult period ahead. Prime Minister Manmohan Singh conveyed to President Obama that Pakistan had become the epicentre of international terrorism. President Obama and Prime Minister Manmohan Singh condemned terrorism in all its forms and stressed their commitment to eliminating terrorist safe havens and infrastructure and disrupting terrorist networks including those of the Al Qaeda and the Laskhar-e-Taiba (LeT).

However, the most notable achievement of the summit meeting was in the field of defence co-operation and, more particularly, defence trade. President Obama and Prime Minister Manmohan Singh expressed satisfaction with the progress achieved in defence co-operation. They called for "expanding security co-operation between the United States and India to address 21st century challenges." In an unanticipated move, the two leaders endorsed a Joint Declaration on Defence Co-operation "as a means of enhancing their partnership in defence technology transfer, joint research, co-development and co-production." They decided to significantly enhance co-operation to combat terrorism, particularly intelligence sharing and exchanging information on known and suspected terrorists. President Obama appreciated India's decision to participate in the Rim of the Pacific (RIMPAC) naval exercise to be hosted by the US Pacific Command in 2014. This will be the first time that India will participate in this annual multilateral exercise.

2.1 Enhancing Ongoing Defence Co-operation

Defence co-operation between India and the US began with baby steps under the Kickleighter Proposals enunciated in 1991. It gathered momentum after the Defence Framework Agreement was signed on June 28, 2005. Under this path-breaking agreement, India and the US had agreed to:

- Conduct joint and combined exercises and exchanges
- Collaborate in multinational operations if it is in common interest Strengthen capabilities of militaries to promote security and defeat terrorism Promote regional and global peace and stability
- Enhance capabilities to combat the proliferation of weapons of mass destruction
- Increase opportunities for technology transfer, collaboration, co-production, and research and development
- Expand collaboration relating to missile defence
- Strengthen the ability of the armed forces to respond quickly to disasters, including in combined operations
- Conduct successful peacekeeping operations Conduct and increase exchanges of intelligence

According to India's Ministry of External Affairs, "Under the Defence Framework Agreement, the institutionalised framework for co-operation was further strengthened with the establishment of the Defence Procurement and Production Group and the Defence Joint Working Group, under the comprehensive bilateral mechanism of the Defence Policy Group." Since then, the two countries have come a long way towards realising the goals that they had set for themselves, some of which had appeared unachievable at that time.

Former U.S. Defence Secretary Leon E. Panetta passes and reviews members of the Indian military during an honours ceremony in New Delhi, June 6, 2012. Photo by Erin A. Kirk-Cuomo. Source: US Department of Defence

Defence co-operation has many dimensions today. It includes the sale, purchase and joint development of military equipment, transfer of military technology, intelligence sharing, co-operation for counter-terrorism and counter-proliferation, jointly providing humanitarian assistance and disaster relief after natural calamities, co-ordination in transnational anti-drug trafficking activities, joint patrolling of sea lanes of communication against piracy and terrorism, and joint military exercises. It also includes working together to maintain regional and international peace and stability under a co-operative security framework. India and the US have participated extensively in all of these activities since mid-2005 when the Defence Framework Agreement was signed.

Recent achievements in defence co-operation have been truly remarkable. Tri-service military exercises have led to a broad understanding of each other's military capabilities and many interoperability challenges have been ironed out. American soldiers have spent time at the Siachen Glacier and have trained at India's Counter-insurgency and Jungle Warfare School (CIJW) at Vairengete. Similarly, troops of the Indian army have trained in the US. The two air forces have participated in several joint exercises and simulations over the skies of Gwalior and Kalaikunda in India and Alaska and Arizona in the US. The Malabar series of naval exercises are being held regularly and participation and intensity levels are being progressively raised. Joint patrolling of the Sea Lines of Communication (SLOCs) in the Indian Ocean is being quietly undertaken under the garb of maritime co-operation. There has been extensive co-operation in anti-piracy operations off the Horn of Africa in conjunction with other friendly navies. In fact, even before the Framework Agreement had been signed, the two navies had put up an excellent example of co-operation for humanitarian relief operations during the December 2004 Southeast Asian Tsunami.

2.2 Defence Trade: Breaking New Ground

For several decades, India's procurement of weapons platforms and other equipment as part of its plans for defence modernisation has remained mired in disadvantageous buyer-seller, patron-client relationships like that with the erstwhile Soviet Union and now Russia. While India has been manufacturing Russian fighter aircraft and tanks under licence for many years, the Russians never actually transferred weapons technology to India. There is now a growing realisation in India that future defence acquisitions must simultaneously lead to a transformative change in the country's defence technology base and manufacturing prowess.

India has diversified its acquisition sources beyond Russia to Western countries and Israel. From the US, India has purchased weapons platforms and other items of defence equipment worth around US$10 billion over the last five years. Major procurements have included the troop carrier ship INS Jalashva (USS Trenton), six C-130J Super Hercules aircraft for India's Special Forces, ten C-17 Globemaster heavy lift transport aircraft, 12 Boeing P-8I Poseidon long-range maritime reconnaissance aircraft and 12 AN-TPQ37 Weapon Locating Radars. Another six C-130J and seven C-17 aircraft are expected to be purchased over the next few years. Also in the acquisition pipeline are M-777 light artillery howitzers, Apache attack helicopters and Chinook medium lift helicopters.

However, none of the recent deals with the US have included transfer-of-technology (ToT) clauses. It is imperative that future acquisitions must be procured with a ToT clause being built into the contract, even if it means having to pay a higher price. The aim should be to make India a design, development, manufacturing and export hub for defence equipment in two to three decades.

The Joint Declaration on Defence Co-operation concluded during the Indian PM's visit in September 2013 is a major step forward towards greater co-operation in the defence trade and technology relationship. The US and India have agreed to treat each other "at the same level as their closest partners" in respect of defence technology transfer, trade, research and joint development and joint production, including the most advanced and sophisticated technologies. The two sides agreed to "identify specific opportunities for co-operative and collaborative projects in advanced defence technologies and systems." They also agreed to improve licensing processes, follow expedited licence approval processes to facilitate co-operation and to protect each other's sensitive technologies and information. Both sides will "address process-related difficulties in defence trade, technology transfer and collaboration."

This is indeed a landmark agreement that has codified previously expressed intentions. The major implication of this agreement is that the US will treat India just like it does, for instance, the United Kingdom, which is an alliance partner, without India having to enter into a military alliance with the US. Also, presumably, India will not have to sign the Communication Interoperability and Security Memorandum Agreement (CISMOA), Basic Exchange and Cooperation Agreement (BECA) and Logistics Support Agreements (LSA), that have been major stumbling blocks in the past and about which it has differences of perception with the US. India is hungry for cutting edge state-of-the-art defence technology and this agreement will help to a large extent to fulfil India's hi-tech requirement. On its part, the US will secure lucrative defence contracts for its leading defence companies. This will give a fillip to the flagging economy and help to create jobs.

C-130J-30 Super Hercules Tactical Airlift Aircraft at Indian Air Force Airbase, Hindan.
Source: Wikimedia Commons[1]

2.3 Streamlining Procurement processes

The US decision a few years ago to transform the existing bilateral export control framework for hi-tech exports had put an end to the discriminatory technology denial regimes that India was subjected to. The US administration removed the names of nine organisations, mostly ISRO and DRDO subsidiaries, from the Entities List and opened the doors for the export of high technology to India. The lifting of sanctions on Indian Space Research Organisation(ISRO), Defence Research & Development Organisation (DRDO) and Bharat Dynamics Limited (BDL) was a welcome step forward and perhaps the Department of Atomic Energy will also be taken off the Entities List soon. In another even more significant and far reaching decision, India was moved from a country group that required strict monitoring under the US Export Administration Regulations to the group comprising members of the Missile Technology Control Regime (MTCR), in recognition of India's adherence to the regime and its impeccable non-proliferation credentials even though India is not a signatory to the MTCR.

In December 2012, the US Congress had for the second consecutive year approved legislation on bilateral defence trade and asked the Administration to consider possibilities of co-production and co-development of defence items with India. Hi-tech weapons and equipment are now being provided and offered to India. Advanced dual-use technologies will give an edge to India over China, both in the security-related and civilian sectors.

1 Available at http://commons.wikimedia.org/wiki/File:C-130_J.jpg?uselang=en-gb

A US soldier launches a FGM-148 Javelin anti-tank missile.
Source: Wikimedia Commons[2]

The present state of the defence trade relationship has been reached through years of getting to know each other as reliable strategic partners. During his visit to India shortly before the Washington summit in September 2013, Deputy Secretary of Defence Ashton Carter is reported to have offered India a "Defence Trade and Technology Initiative", under which the US will share sensitive cutting-edge defence technology and permit US companies to enter into joint production and co-development ventures with India. Subsequently, it was reported that Deputy Secretary Carter had offered a list of ten joint production projects to India. According to Carter, "These include a maritime helo, a naval gun, a surface-to-air missile system, and a scatterable anti-tank system." He has also affirmed that "We changed our mind-set around technology transfer to India in the Department of Defence (DOD) from a culture of presumptive no to one of presumptive yes."

The Javelin anti-tank guided missile (ATGM) is another key candidate for joint production although, so far, the US has been hesitant to offer its seeker technology. India is also looking for high-end counter-IED technologies. In future, the two countries will conduct joint research and development for new weapons systems and the US may offer even nuclear power packs for submarines and aircraft carriers and fighter aircraft engines. Co-operation of such a high order will raise India's technology base exponentially and help the country to move several notches higher in its quest for self-reliance in defence production. Although India's Ministry of Defence did not express its happiness publicly, from India's point of view this is a giant leap forward from the times when India had been subjected to strict technology denial regimes by the US.

2 http://commons.wikimedia.org/wiki/FGM-148_Javelin#mediaviewer/File:FGM-148_Javelin_-_ID_DM-SD-04-07567.JPEG

2.4 Future Co-operation: Joint Military Operations?

Where is defence co-operation between the US and India headed over the next decade or so? There is mutual recognition of the adverse implications of China's increasing assertiveness and the need to work in unison with the international community to uphold the unfettered use of the global commons like sea lanes for trade, space and cyberspace. The US and India also view their strategic partnership as a hedging strategy against two major eventualities: should China behave irresponsibly in Asia and should China implode. In either case, both countries will need reliable partners to bolster stability. While the probability of either occurrence is low, China's recent belligerence in the South China Sea and its assertiveness in dealing with the dispute over the Senkaku (Diaoyu) islands with Japan have undermined international and regional confidence in its desire to resolve disputes peacefully.

A coalition colour guard marches off the 82nd Airborne Division parade ground to conclude the opening ceremony of Yudh Abhyas, the annual training event between the U.S. and Indian armies, May 3, 2013, at Fort Bragg, N.C. Yudh Abhyas 2013 paired the 82nd Airborne Division's 1st Brigade Combat Team with the Indian army's 99th Mountain Brigade. (U.S. Army photo by Sgt. Michael J. MacLeod).
Source: Wikimedia Commons[3]

India has acquired robust military intervention capabilities and its armed forces are engaged in the process of formulating a doctrine to give effect to these capabilities. The Indian Army has designated one infantry division as a rapid reaction division, with an amphibious brigade, an air assault brigade and an infantry brigade. Air assault capabilities are capital intensive and will take five to ten years to become fully operational. The army also has an independent parachute brigade that can be deployed at short notice. The Indian Navy acquired the INS Jalashva (USS Trenton) that can carry one infantry

3 http://commons.wikimedia.org/wiki/File:Yudh_Abhyas_2013,_Coalition_color_guard.jpg

battalion with full operational loads and is in the process of acquiring additional landing ships. Besides long-range fighter-bomber aircraft with air-to-air refuelling capability like the SU-30MKI, the Indian Air Force has acquired fairly substantive strategic airlift capabilities, including six C-130 Super Hercules aircraft for the Special Forces and C-17 Globemaster heavy lift transport aircraft.

In future, India may conduct joint military operations with the US in its area of strategic interest in a contingency in which India's vital national interests are threatened. This may take the form of a Chapter 6 intervention under the UN flag – something that India would prefer – or India may consider joining even a "coalition of the willing". Of course, there will be many caveats to such co-operation as it is not in India's long-term interest to form a military alliance with the US. While India values its strategic autonomy and recognises that each bilateral relationship is important in its own way, the India-US strategic partnership, more than any other, will shape the geo-political contours of the 21st century through co-operative security to enhance peace and stability the world over, particularly in the Indo-Pacific.

According to Shivshankar Menon, India's National Security Advisor, the two countries now have a "Full spectrum relationship… the relationship has all the attributes of a strong and comprehensive strategic partnership." In the years ahead, India and the US are bound to build further on the solid achievements of the last decade. Naturally, there will occasionally be some bumps on the highway, but there is reason to believe that the institutional mechanisms that are already in place will succeed in overcoming the obstacles that come up.

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Chapter 3

BUILDING PARTNERSHIPS AND STRENGTHENING CAPACITIES: INDIA'S DEFENCE INDUSTRY*

Sanjay Pulipaka and Sylvia Mishra

3.1 Introduction

India's defence expenditure has registered a sustained increase over the past few years. This is largely a consequence of its geo-political location. With defence expenditures in the neighbourhood registering double digit growth, territorial disputes with China and Pakistan (a power that has emerged and a country that often threatens to become a failed state respectively), a neighbourhood which is witnessing significant political transitions, and its strategic location between the energy-rich West Asia and economically powerful East Asia, India has little option to but to bolster its defence preparedness.

With increasing growth rates (till recently), growing trade and formidable defence apparatus, India is being seen as an emerging power capable of acting as a net security provider in the Indo-Pacific region. However, there is an urgent need for rapid modernisation of the Indian defence forces to allay concerns about increasing obsolescence. Given these numerous challenges – geographic location, increasing security threats, and the need for rapid modernisation – India's defence expenditure is also bound to increase in the near future.

In order to meet various security challenges, India currently imports 70 per cent of its weapons and technology.[1] Given the fact that the domestic defence industry is not robust, India has emerged as the largest importer of defence products. According to data published by the Stockholm International Peace Research Institute (SIPRI), in 2013, "India's arms imports are now almost 3 times as high as those of the second and third largest arms importers—China and Pakistan."[2] The SIPRI report also pointed out that

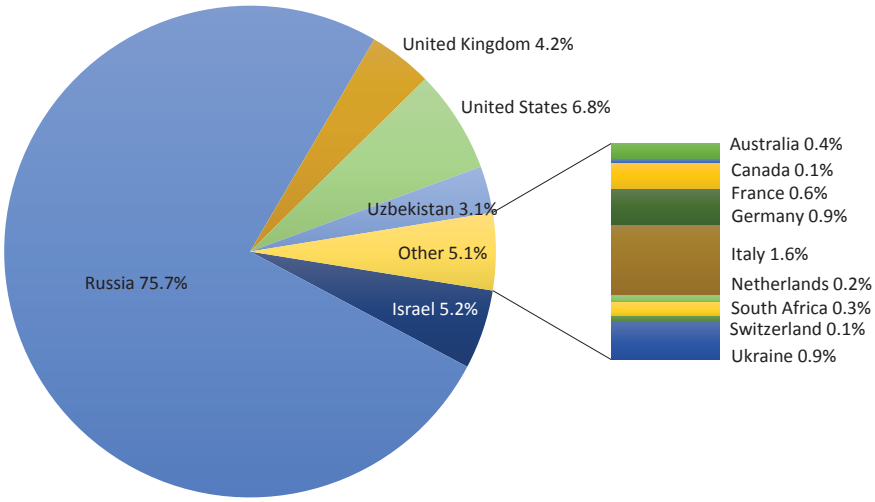
* This report is based on the deliberations of the Workshop on "India-US Defence Cooperation: The Way Forward" organised by the ICRIER Wadhwani Chair on December 9, 2013

1 "70 per cent of Defence Machinery Imported while Indian Defence Companies find Government a Hindrance," *The Economic Times*, February 15, 2013, available at http://articles.economictimes.indiatimes.com/2013-02-15/news/37119550_1_defence-companies-defence-contracts-biggest-defence

2 "South Asia and the Gulf Lead Rising Trend in Arms Imports, Russian Exports Grow, says SIPRI," *SIPRI*, March 17, 2014, available at http://www.sipri.org/media/pressreleases/2014/AT_march_2014

the volume of Indian imports of major weapons rose by 111 per cent between 2004–08 and 2009–13, and its share of the volume of international arms imports increased from 7 to 14 per cent.[3] While Russia was predictably the largest supplier of defence products and accounted for 75.68 per cent of India's imports, the United States, which accounted for 6.77 per cent of India's imports, has emerged as the second largest supplier.[4] Israel is now third largest supplier accounting for 5.22 percent of India's defence imports.[5]

Figure 1: Share of Indian Defence Imports (by country, 2012-13)



Source: TIV Arms Exports to India, 2012-2013, SIPRI, Downloaded May 2014

The fact that India has become the largest importer of defence equipment indicates that domestic public sector units (DPSUs) have not been able to meet the burgeoning requirements of the defence forces. This is partly because the defence sector was opened up for Indian private sector participation only in 2001.[6] Given limited domestic capacities, India will have to source a significant amount of defence equipment from abroad in the near future. However, such high levels of imports cannot be sustained over extended periods of time, as they are resulting in the loss of foreign exchange without generating commensurate economic capacity within the country. High levels of defence imports also tend to make a country vulnerable to external pressure. Denial regimes or denial tactics can inflict damage on the defence capabilities of a country, in proportion to the level of the imports of that country.

In the past few decades, sustained efforts have been made to kick-start the Indian domestic defence industry. An important component of this effort has been the Defence Procurement Procedure (DPP), initiated in 2006, which was subsequently revised and updated many times to meet requirements. The intent of the DPP has been to ensure indigenisation, create a level playing field, ensure greater transparency and simplify procedures. Some of the important amendments that were ushered-in recently

3 "South Asia and the Gulf Lead Rising Trend in Arms Imports, Russian Exports Grow, says SIPRI," *SIPRI*, March 17, 2014, available at http://www.sipri.org/media/pressreleases/2014/AT_march_2014

4 Ibid.

5 Siemon t. Wezeman and Pieter D. Wezeman, 'Trends in International Arms Transfers, 2013', *SIPRI Fact Sheet*, March 2014, available at http://books.sipri.org/files/FS/SIPRIFS1403.pdf

6 "Private Sector Participation," *Department of Defence Production*, July 11, 2013, available at http://ddpmod.gov.in/index1.php?lang=1&level=0&linkid=12&lid=17

include "'preferred categorisation' in the following order: 'Buy (Indian)', 'Buy & Make (Indian)', 'Make (Indian)', 'Buy & Make', 'Buy (Global)'. While seeking the approval for Áccord of Necessity (AoN) in a particular category, say, 'Buy (Global)', it will now be necessary to provide a justification for not considering the other higher preference categories. Prescribed indigenous content, e.g. 30% in the Buy (Indian) category, is to be achieved on the overall cost basis, as well as in the core components i.e. the basic equipment, manufacturer's recommended spares, special tools and test equipment taken together. In addition, the basic equipment must also have at a minimum 30 per cent indigenous content at all stages, including the one offered at the trial stage."[7]

As a consequence of policy measures aimed at promoting indigenisation in defence production, Indian private sector participation in the defence industry has registered a sustained increase. Given the fact that domestic capabilities in high-end defence production are limited, many Indian companies will have to go in for joint ventures with global defence companies. Not surprisingly, large Indian companies such as the TATA Group, Mahindra Group, and Larsen & Toubro, along with their own production programmes, have entered into joint ventures with leading foreign defence companies. Some 30 licensed private sector companies have commenced commercial production and approximately 23 joint venture companies, involving public and private sector companies to manufacture defence equipment, have been set up till 2012.[8]

Table 1: Some Examples of Indian and the US Defence Companies Entering into Joint Ventures [9]

US Partner	Indian Partner
Lockheed Martin	Wipro Technologies
Boeing	Tata Industries
Lockheed Martin	Tata Advanced Systems
Telephonics Corporation	Mahindra & Mahindra
Raytheon and Lockheed Martin	Bharat Dynamics
Sirkosky	Tata Systems
Thales	Centrum Group

7 "Salient Features of Defence Procurement Procedure- 2013," *Press Information Bureau*, June 01, 2013, available at http://pib.nic.in/newsite/erelease.aspx?relid=96361

8 "Report of Working Group on Defence Equipment," *Planning Commission of India*, available at http://planningcommission.gov.in/aboutus/committee/wrkgrp12/Wg_defence_equipment.pdf

9 Sources: Wipro and Lockheed Martin start ops in Gurgaon', The Economic Times, August 12, 2007, available at http://articles.economictimes.indiatimes.com/2007-08-12/news/27667440_1_lockheed-martin-network-centric-operations-centre-ambar-jyoti ; 'Boeing, Tatas plan aerospace parts JVs', The Economic Times, February 15, 2008, available at http://articles.economictimes.indiatimes.com/2008-02-15/news/27711673_1_boeing-integrated-defense-systems-defence-and-aerospace-ratan-tata ; 'Lockheed Martin, Tata Form India JV', The Wall Street Journal, February 14, 2011, available at http://online.wsj.com/news/articles/SB10001424052748703584804576143572095199828 ; 'Mahindra Telephonics Integrated Systems Opens First Private Joint Venture Aerospace & Electronics Manufacturing Facility in India', Business Wire, February 05, 2014, available at http://www.businesswire.com/news/home/20140205006322/en/Mahindra-Telephonics-Integrated-Systems-Opens-Private-Joint ; 'RIL, Raytheon may form homeland security JV', The Economic Times, December 29, 2011, available athttp://articles.economictimes.indiatimes.com/2011-12-29/news/30569011_1_joint-venture-homeland-security-mumbai-cctv ; 'US-India Javelin joint venture proposed', IHS Jane, September 29, 2013, available at http://www.janes.com/article/27659/us-india-javelin-joint-venture-proposed ; 'TATA Sikorsky JV delivers first fully indigenous S-92 helicopter cabin', Sikorsky Press Release, October 24, 2013, available at http://www.sikorsky.com/About+Sikorsky/News/Press+Details?pressvcmid=870b299552ce1410VgnVCM1000004f62529fRCRD ; 'Going Great Guns', Business Today, March 2, 2014, also available at http://businesstoday.intoday.in/story/private-sector-manufacturing-of-defence-equipment/1/203170.html

While increasing the density of joint ventures is an important step forward, a more comprehensive approach to kick start India's domestic industry is an urgent necessity. There is a need to address delays in according approvals, licences, and business permits, which has been an impediment to the successful functioning of joint ventures between large Indian private sector companies and their foreign defence partners. The creation of a multi-tiered structure, increased FDI limits, further improvements in offset policy and strengthening small and medium enterprise participation in the defence industry are among the measures that need to be initiated.

Building a vibrant defence industry cannot be achieved without synergising India's civil needs and defence needs. Conceptually, a weapon system should not be seen just as one single unit, but as a combination of different units. Taking such a disaggregated approach will enable development of a multi-tiered structure of production involving both civilian and defence companies. For instance, 60-70 per cent of defence aircraft components are sourced by producers from various vendors, which are substantially civilian companies. However, since the government is the sole buyer of the equipment, the lack of predictability/certainty of orders is regarded as one of the challenges for companies working in the defence sector. Therefore, there is also a need to treat some vendors as "designated vendors" to ensure that there is predictability and certainty when placing orders. This will help strengthen the private sector vendor base. A focused approach on creating a multi-tiered vendor structure is critical for creating a proper eco-system for the domestic defence industry to emerge.

3.2 The Need for Enhanced FDI Limit

There have been consistent demands for an enhanced FDI limit in the defence sector from various stakeholders such as Indian industry, global defence companies and foreign partner countries. However, there has been considerable debate on what the upper limit of FDI investments in the defence sector should be.

In 2001, the defence industry was opened up for the Indian private sector and foreign direct investment (FDI) up to 26 per cent was allowed. This policy has not been able to generate substantial financial or technological inflows due to lack of incentives for foreign defence companies. India has received total foreign direct investment of $306.88 billion since 2000[10], of which only a meagre $4.94 million (a mere 0.002 per cent of the total FDI) was received in the defence sector.[11]

For India to revamp its defence manufacturing capabilities, FDI is imperative because of the heavy capital investment and complex technology requirements, the existence of global supply chains involving multiple vendors and the need to implement projects at a rapid pace to avoid obsolescence.[12]

There seem to be divergent views in the Indian government on the FDI limit in the defence sector. The commerce ministry's Department of Industrial Promotion and Policy (DIPP) has proposed that the FDI

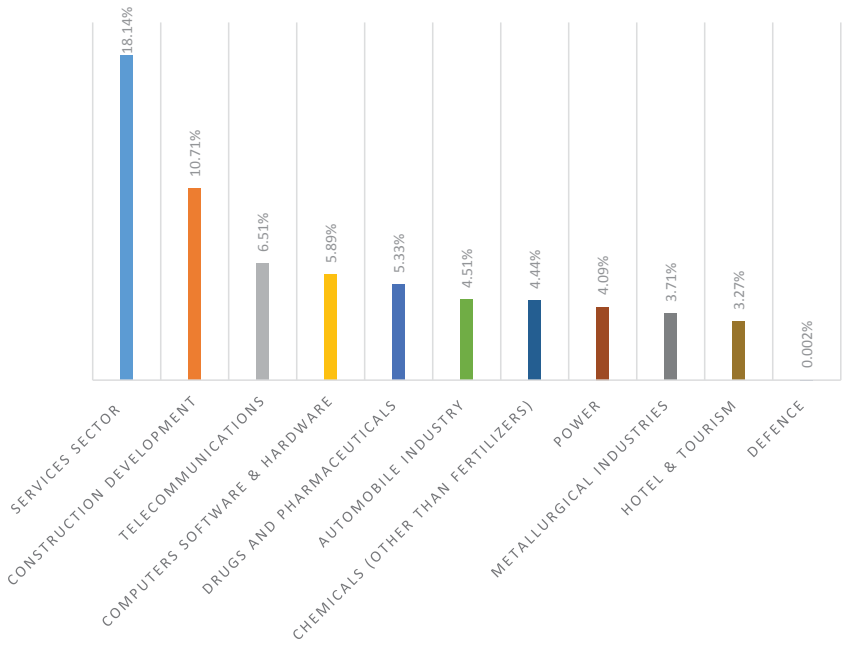
10 'India received FDI of over $306 bn since 2000: Govt', *India Spend*, January 29, 2014, available at http://www.indiaspend.com/chart-of-the-day/india-received-fdi-of-over-306-bn-since-2000-govt-2000

11 Rajat Pandit, 'In 13 years, India gets only $4.94 million as defence FDI', *Times of India*, August 6, 2013, available at http://timesofindia.indiatimes.com/india/In-13-years-India-got-only-4-94-million-as-defence-FDI/articleshow/21637800.cms

12 Mrinal Suman, "FDI in the Defence Industry" *Security Research Review*, 2006, available at http://www.bharat-rakshak.com/SRR/Volume21/suman.html

limit in the defence sector should be raised. In 2013, Commerce and Industry Minister Anand Sharma, in a letter to the Prime Minister, called for raising the FDI limit in the defence sector from 26 to 74 per cent, adding that "in case there is reluctance to enhance the cap to 74 per cent, a calibrated approach could be adopted and in the first instance, FDI up to 49 per cent could be allowed.[13]"

Figure 2: FDI Equity Inflows from April 2000 to March 2014



Source: Fact Sheet on Foreign Direct Investment (FDI), Department of Industrial Policy and Promotion: Government of India[14]

The Defence Ministry, on the other hand, did not see any need to increase the FDI limit in the defence sector. In a communication to Commerce Minister Anand Sharma, Defence Minister A.K. Antony stated, "allowing foreign companies to set up manufacturing/assembly facilities here would be a retrograde step as it will stymie the growth of indigenous design and development, and our dependence on foreign countries and Original Equipment Manufacturers (OEMs) for modern weapons will get perpetuated..... the deliberated view of the defence ministry, therefore, remains that the FDI cap in the defence manufacturing sector should remain at 26 per cent.[15]" However, the Defence Minister added that decisions on FDI beyond 26 per cent "can be taken to allow higher FDI on a case-to-case basis by the Cabinet Committee on Security," if it results in access to state-of-the-art technology.[16] It is pertinent to note that even while the Defence Minister was reluctant towards accepting increased FDI, he saw increased FDI as way of acquiring state-of-the-art technology.

13 Sujay Mehudia, "Anand Sharma Wants 74% FDI in Defence," *The Hindu*, March 23, 2013, available at http://www.thehindu.com/business/Economy/anand-sharma-wants-74-fdi-in-defence/article4539149.ece

14 Available at: http://dipp.nic.in/English/Publications/FDI_Statistics/2014/india_FDI_March2014.pdf

15 "Antony Opposes Commerce Ministry Proposal for Hiking FDI in Defence to 49%," *Times of India*, July 03, 2013, available at http://timesofindia.indiatimes.com/business/india-business/Antony-opposes-commerce-ministry-proposal-for-hiking-FDI-in-defence-to-49/articleshow/20895863.cms

16 Sujay Mehudia, "Anand Sharma Wants 74% FDI in Defence," *The Hindu*, March 23, 2013, available at http://www.thehindu.com/business/Economy/anand-sharma-wants-74-fdi-in-defence/article4539149.ece

A similar stance on the existing FDI limit in the defence sector was taken by Federation of Indian Chambers of Commerce and Industry (FICCI) in its discussion paper in 2010, which points out that any upward revision from 26 per cent will have to be approached carefully and 49 per cent can considered only if certain conditions are met.[17] The conditions for higher FDI would include proprietary technology content being inducted in the joint venture, undertaking to source between 50 per cent and 70 per cent of components from Indian vendors, full platforms being produced in India and so on.[18]

In 2009, the defence expenditure review committee, headed by V.K. Misra, recommended a hike in the FDI limit in the defence sector to 49 per cent.[19] More recently, in 2013, the Parliamentary Standing Committee on Defence recommended an increase in the FDI limit to attract foreign companies as it would benefit the Indian defence sector in the long run and help save foreign exchange.[20]

A U.S. Army CH-47 Chinook helicopter carries a sling-loaded shipping container in Afghanistan. It has been reported that India is planning to 15 Chinook heavy-lift helicopters at estimated cost of around $1 billion.[21]
Image Source: DoD photo by Capt. Peter Smedberg, U.S. Army, Wikimedia Commons[22]

17 FICCI: 26% FDI has Already Attracted Top Overseas Defence OEMs, 40 % cap can be considered on the basis of conditions suggested by FICCI (A Response to the Discussion Paper Released by DIPP), *FICCI*, July 26, 2010, available at http://www.ficci.com/PressRelease/633/july27release.pdf

18 Ibid.,

19 "Panel Proposes FDI Hike in Defence Sector to 49%," *DNA*, December 29, 2009, available at http://www.dnaindia.com/money/report-panel-proposes-fdi-hike-in-defence-sector-to-49-1328552

20 "Parliamentary Panel Recommends Enhancing FDI Limit in Defence Sector," *The Economic Times*, April 29, 2013, available at http://articles.economictimes.indiatimes.com/2013-04-29/news/38904777_1_fdi-limit-ceasefire-violations-defence-ministry

21 Rajat Pandit, "Defence Ministry Seeks 25% Hike in Budget," *Times of Indi*a, May 25, 2014, available at http://timesofindia.indiatimes.com/india/Defence-ministry-seeks-25-hike-in-budget/articleshow/35579829.cms

22 Available at http://commons.wikimedia.org/wiki/File:A_U.S._Army_CH-47_Chinook_helicopter_carries_a_sling-loaded_shipping_container_during_retrograde_operations_and_base_closures_in_the_Wardak_province_of_Afghanistan_131026-A-SM524-737.jpg?uselang=en-gb

The Naresh Chandra Committee, constituted by the Prime Minister to suggest reforms in the national security apparatus, also called for a higher FDI limit stating, "there is every need to support higher FDI so that the latest technologies already developed by foreign entities and owned by them find their way into manufacturing defence items within India ...The limit of FDI in defence industries should be raised for partnerships both with defence public sector units and with private Indian companies."[23]

Senior defence personnel have also been calling for a higher FDI limit. Pointing out that the Air Force alone would be spending $150 billion over the next 15 years, senior Air Force officials have noted that much of this would be spent on imports as investment in domestic capacity has been less than satisfactory.[24] Air Marshal P.P. Reddy, calling for a higher FDI limit, pointed out last year that "This [lack of private participation] has been aggravated by the fact that FDI hasn't been permitted in the defence sector until 2001 and now we permit 26% [ownership], which I don't think is attractive to the foreign industry ..... why this restriction? We need to ponder over this. Because, in countries like the US and UK, there are wholly owned subsidiaries of [companies of] other countries."[25]

There have been growing demands from Indian industry as well to increase the FDI limit as it would result in increased investments. For instance, senior officials of the Tata Group have stated: "as a group, we support 49 per cent FDI cap in the defence sector."[26] A survey by the Confederation of Indian Industry (CII) has also found that domestic industry is in favour of a 49 per cent FDI limit provided that Intellectual Property Rights (IPR) should rest with the joint venture and the foreign partner should bring in specialised technology that is not easily available.[27]

US companies and other global defence manufacturers would welcome raising the FDI limit above 50 per cent. In 2013, the US-India Business Council (USIBC), in a memorandum to the Finance Minister stated: "USIBC strongly advocates upward revision of India's FDI cap in the defence sector from the present 26 per cent to 74 per cent in order to allow for greater investment and transfer of technology by global defence companies, resulting in increased opportunities for co-production, joint manufacturing, and offset partnerships with Indian industry."[28] From the perspective of US defence companies, increased FDI limits would make it easier to convince their shareholders that there is possibility of increased rate of returns on investment, and would enable them to make long term plans by involving local companies as part of the commercial supply chain.[29]

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23 "Raise FDI in Defence Sector: Naresh Chandra Panel," *The Economic Times*, August 29, 2012, available at http://articles.economictimes.indiatimes.com/2012-08-29/news/33476180_1_defence-sector-naresh-chandra-panel-fdi-limit

24 Santanu Choudhury, "IAF Officer Calls for More Foreign Investment in Defense," *The Wall Street Journal*, November 06, 2013, available at http://online.wsj.com/news/articles/SB10001424052702303763804579182723688255050

25 Ibid.

26 Manu Kaushik, "Tata Group seeks hike in defence FDI cap", *Business Today*, January 29,2014, also available at http://businesstoday.intoday.in/story/tata-group-seeks-hike-in-defence-fdi-cap/1/202818.html

27 "FDI in Defence - A Case for Review: CII Survey," *CII*, May 10, 2010, available at http://www.ciidefence.com/pressreleases_may12_01.asp

28 "USIBC Wants FDI Limit in Defence Hiked to 74%," *The Hindu*, February 21, 2013, available at http://www.thehindu.com/business/Economy/usibc-wants-fdi-limit-in-defence-hiked-to-74/article4439267.ece

29 'Boeing: India will see more US investment in defence if FDI limit is raised', *Hindu Business Line*, February 14, 2014, available at http://www.thehindubusinessline.com/economy/boeing-india-will-see-more-us-investment-in-defence-if-fdi-limit-is-raised/article5689134.ece

The advocates of a higher FDI limit (more than 50 per cent) from the current level of 26 per cent make the following points:

- First, a disproportionately high percentage (around 70%) of defence equipment is still being imported. Even if a fraction of this is manufactured in India, it will save foreign exchange, create jobs and, over time, will contribute to increased domestic defence production.
- Second, concerns that since management control will not be in Indian hands and companies, therefore, would be more susceptible to embargoes and sanctions, are not valid. Direct imports are more susceptible to such restrictive measures. Given the heavy investment that defence companies tend to make, relocating industry due to embargoes/sanctions will be a difficult enterprise. Moreover, since industries operationalised in India would be part of global production networks, there would be greater caution on imposing sanctions against India.
- Third, the fear that designs/source codes of sensitive technologies will be sold to adversaries may appear to be a legitimate concern. However, lower FDI is not the answer to such concerns. Sale of designs/source codes of sensitive technologies to such countries may occur from various other countries. By allowing greater FDI from international companies, the government would be in a better position to prevent such sales. Regulation and monitoring of defence industries located in India can also be done to ensure that sensitive technologies are not transferred to enemy countries.[30]
- The concern that India's indigenous defence industry would be negatively impacted by the enhanced FDI limit is also misplaced. In spite of decades of protectionist environment, domestic defence industry is yet to acquire momentum. FDI would bring in necessary capital and high-end technologies, the lack of which is stemming the growth of the domestic defence industry.[31]

Because of its well trained man-power, vibrant private sector and large market, India can emerge as an attractive destination for FDI investment in the defence sector provided the necessary policy framework is in place. At the moment, there are more disincentives than incentives for foreign players to produce in India. An important disincentive has been the FDI limit in the defence sector, which has been locked in at 26 per cent since 2001. As noted above, fairly large numbers of stakeholders within the country and foreign defence companies have been calling for an enhanced FDI limit. It should be possible to start by raising the current limit from 26 to 49 per cent and then gradually moving to higher levels of 51 per cent, 74 per cent and 100 per cent. Enhanced FDI limits will bring in capital and the latest technologies, resulting in increased domestic production.

30 Sushant K Singh, "Foreign Direct Investment in India' Defence Sector – Go Beyond 51 %," *Takshashila Discussion Document*, April 14, 2010.

31 Maj Gen Mrinal Suman, "FDI in Defence: Dispelling the Myths," *India Defence Review*, 02 Sep , 2013, Issue Vol. 28.3, available at http://www.indiandefencereview.com/news/fdi-in-defence-dispelling-the-myths/

Table 2: India's Defence Acquisitions from the United States (2000-2013)[32]

Defence Acquisitions			Acquisitions in the Pipeline		
Quantity	Item	Cost	Quantity	Item	Cost
1	Troop Carrier Ship INS Jalashva (USS Trenton)	around $ 48 million	22	Apache Attack Helicopters	around $1.4 billion
12	C-130J-30 Hercules	around $2.1 b	15	Chinook Heavy-Lift Helicopters	around $ 1 billion)
10	C-17 Globemaster III Heavy Lift Transport Aircraft	around $2.1 b	145	M-777 Light Artillery Howitzers	around $ 885 million
12	P-8 A Poisedon long range maritime reconnaissance aircraft	around $ 2 billion for eight aircraft – four more selected but not yet ordered	542	AGM 114K HELLFIRE Anti-Tank Missile	estimate unavailable
12	AN-TPQ37 Fire-finder Artillery locating radars	around $ 142-190 million	812	AGM 114L HELLFIRE Anti-Tank Missile	estimate unavailable
20	Harpoon Missiles	around $ 170 million	12	AN/APG-78 Longbow Combat Helicopter	estimate unavailable
32	Mk-54 MAKO ASW Torpedos	around $ 170 million	245	FIM-92 Stinger Portable SAM	estimate unavailable
512	CBU-97 SFW Guided bombs	$ 258 million	-	Javelin Anti-Tank Guided Missiles	Proposal from the US for co-production
6	S-61/H-3A Sea King Helicopter (Second-hand)	$ 39 million			

Note: Only major weapons systems; accessories and components are not listed here.

3.3 Offsets

Defence offsets are mechanisms through which the buyer of defence equipment seeks to ensure that some component of out-flowing resources is invested back in the country. In direct offsets, the supplier company would buy local commodities to build defence equipment and/or transfer technology and in indirect offsets, the company may help export a country's goods. [33]

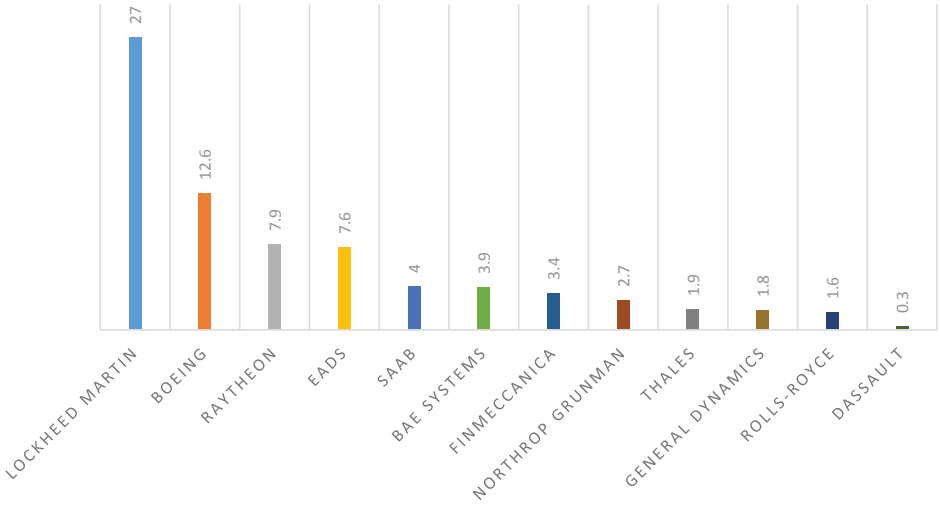
Various countries across the world have been using offset policies on the assumption that it may result in collaboration, co-production and technology transfer. Since offsets are supposed to generate economic activity within the country, it is assumed that they would result in strengthening domestic production

32 Transfers of Major Conventional Weapons: Sorted by Supplier (Unites States). Deals with Delivers or Orders made for year range 2000 to 2013, SIPRI, downloaded on May 2014; Also see Rajat Pandit, Defence Ministry Seeks 25% Hike in Budget," *Times of India*, May 25, 2014.

33 Carola Hoyos, Daniella Tsar and Antoine Amann, "Q&A: What are Offsets?" *Financial Times*, October 09, 2013, available at http://www.ft.com/cms/s/0/87728d1e-197a-11e3-afc2-00144feab7de.html#axzz2wOGDYvNi

capacities and employment generation. While offsets are prohibited by the World Trade Organization (WTO), they can be deployed for the "protection of the essential interests of [a member country's] security," and the US is considered to be a country with stringent offsets under its Buy American Act, "which stipulates that at least 50 per cent of the defence equipment it buys has to be built on US soil."[34] Incidentally, defence offsets were deployed as early as in the 1950s, with the US asking West Germany to buy US defence equipment to offset the cost of stationing US troops in that country.[35]

Figure 3: Current Offsets Obligations Worldwide (by Manufacturer, $ bn, 2013)



Source: Carola Hoyos, "Defence Groups' Sweeteners Swell to $75bn," *Financial Times*, October 09, 2013.

Since defence spending in different parts of the world such as Europe and the US is going down, countries such as India can leverage their defence expenditures better to generate increased domestic production and offsets are seen as an important component of such an approach. Currently, in India, offset guidelines mandate that for defence contracts worth more than $65 million (approximately Rs.300 crore), a minimum of 30 per cent of the contract value should be generated/invested/ploughed back into India.[36] The offset obligations are applicable to 'Buy (Global)' and 'Buy and Make with Transfer of Technology' category of acquisitions.[37] Some of the main components of the defence offsets policy are the following:[38]

- The offsets obligations can be discharged in the form of purchase of defence components manufactured in India, FDI in joint ventures and investment in kind in terms of transfer of technology (ToT), among others.
- The offset obligations can be met in terms of transfer of technology (ToT) with credit multipliers up to 300 per cent.

34 Ibid.,
35 "Guns and Sugar," *The Economist*, May 25, 2013.
36 "Defence Procurement Procedure 2011 – Revision of Defence Offset Guidelines," *Department of Defence Production*, August 01, 2012, available at http://ddpmod.gov.in/showfile.php?lid=95
37 Indian Defence Offset Policy, *CII*, available at http://www.ciidefence.com/indiandefpolicy.asp
38 Defence Procurement Procedure 2011 – Revision of Defence Offset Guidelines," Department of Defence Production, August 01, 2012, available at http://ddpmod.gov.in/showfile.php?lid=95; See Ibid.

- The offset obligations should be discharged "within a time frame that can extend beyond the period of the main procurement contract by a maximum period of two years."
- The Defence Offsets Management Wing (DOMW) has been constituted to administer, monitor and guide the implementation of the offset policy.
- Offsets can be banked for a period of seven years from the date of acceptance by DOMW.
- More recently, an 'Offsets Facilitation Cell' has been initiated as part of the larger Defence Offset Management Wing (DOMW).

Offsets contracts worth $4.6 billion were being executed in India as of March 2013, and it is estimated that some $10 billion worth of offset contracts are in the pipeline.[39] This raises a question as to whether domestic Indian defence industry is in a position to absorb these contracts. Further, foreign OEMs may prefer to work with major Indian companies with a global reputation. This would deny a level playing field to other segments of Indian industry.

The benefits accruing from the offsets policy can be further strengthened by bringing in greater clarity in terms of the methodology deployed to assess the value of technology, ensuring time-bound responses to the questions raised by the OEM, building a database of prospective offset providers detailing their core competencies, and bolstering the human resources managing the DOMW (in terms of training and numbers).[40]

When operationalising offsets, foreign firms may be tempted to look at low-hanging fruit in terms of easily executable projects. However, such projects may not necessarily contribute to the indigenisation process. The capacity of the Indian partner to absorb technology and willingness to look beyond immediate profits should be some of the criteria in the selection of the offset partners. The other challenge that needs to be confronted is establishing the relationship between Medium and Small Scale Enterprises (MSMEs) and foreign original equipment manufacturers (OEM) because the credit ratings for these enterprises are not available.[41]

From the perspective of the Indian government, care needs to be taken to ensure that the offsets policy does not result in price escalation. When the choices available to purchase a given piece of defence equipment are low, it is distinctly possible that the supplier may increase the price of the equipment to factor-in the offset cost as well. Therefore, it is important to focus on transfer of technology (ToT) and to generate a positive impact on the domestic defence industry. The offsets policy should have a strategic vision, pre-identified priority areas and core competencies that need to be nurtured in the defence industry. Development of such a strategic vision should involve due consultations with all stakeholders. A US expert has suggested that the constitution of a National Commission on Offset Resources would provide the necessary framework to think about offsets in a strategic manner.[42] Conceptualisation of

39 P.R. Sanjai, "Indian Defence Offset Contracts to Touch $ 10 Billion Mark Soon," *Live Mint*, January 16, 2013, available at http://www.livemint.com/Politics/lxuJSiP0umfApHS9cuqRcL/Defence-offset-opportunities-to-cross-10-billion-mark-Delo.html

40 "Indian Defence Offsets: A Preliminary Appraisal," *CLAWS Issue Brief*, No. 32, February 2013, available at http://www.claws.in/administrator/uploaded_files/1393477856IB%20%2032%20%20%20%2025-02-14.pdf

41 Based on a conversation with Brig. Arun Sahgal.

42 S. Amer Latif, "Defense Offsets in India," *CSIS*, August 16, 2012, available at http://csis.org/publication/defense-offsets-india

offsets as part of larger national policy frameworks[43] aimed at the modernisation of defence forces and development of dual-use assets would be a practical way forward.

Indian Navy Boeing P-8I Neptune (Poseidon). India has ordered 8 P-8 Poseidon Anti-submarine warfare (ASW) at an estimated cost of $ 2 billion (Offsets 30%, including production of components in India). Image Source: Wikimedia Commons.[44]

The defence industry in India and the US are based on two very different approaches. The defence industry in the US is based on the idea of free enterprise and competition and the applicability of stringent anti-trust laws. The Indian defence industry, on the other hand, is a consequence of centralised planning with significant regulations. US defence companies have to prove that their purchases are based on genuine competitive processes. Ensuring compliance with the US competitive process and at the same time meeting Indian offset requirements in the context of the absence of a reasonably vibrant Indian domestic industry is being cited as one of the challenges faced by US companies. Further, since US companies have global supply chains, the Indian offset partner should not just be competitive within India but also in the global market.

43 "Indian Defence Offsets: A Preliminary Appraisal," *CLAWS Issue Brief*, No. 32, February 2013, available at http://www.claws.in/administrator/uploaded_files/1393477856IB%20%2032%20%20%20%2025-02-14.pdf

44 Available at http://commons.wikimedia.org/wiki/File:Indian_Navy_P-8I_armed_with_Harpoon_Anti-Ship_missile.jpg

3.4 Offsets and Services

The inclusion of services, including software, in offsets has been kept under abeyance by the Ministry of Defence since May 2013. "The term "Services" covers a range of activities including software development; software and computer based training modules; Maintenance, Repair and Overhaul (MRO); engineering, designing and testing; quality assurance; and training."[45] This decision was reportedly taken as there were concerns that some foreign companies may have misused this provision for routing kickbacks.[46] With the removal of services from the offsets framework, foreign companies, which often complain about the absence of an adequate and appropriate local industrial base, will find the Indian environment even more constraining.[47]

Along with the intent to plug the possibility of misuse, the necessity to kick-start the manufacturing sector may have been one of the motives behind the temporary removal of services from the offset provisions. While the intentions may have been valid, the temporary removal of services from offset frameworks has generated anxiety regarding the impact it would have on the contracts that have been concluded. Leading Indian software companies would lose an opportunity to participate in some $10 billion worth of offset opportunities that would be in the offing in the near future, as referred to earlier. [48]

The removal of services from offsets policy ignores that design and development are integral components of manufacturing. If India's defence industry has to have better absorption of transfer of technology and acquire an end-to-end capability, then engineering services including design and development needs to be encouraged. It is precisely for this reason that augmenting capacity for Research, Design and Development related to defence products and services has been one of the objectives of the offsets policy. Therefore, removing the Services industry, specifically sectors related to design and engineering, will negate the intent of the stated policy.[49]

Concerns have been expressed in some quarters that there is a genuine challenge with services being treated as an offset, as determining the value added in the services sector can sometimes be difficult. However, industry experts believe that such concerns do not have substance. For instance, it has been pointed that NASSCOM has recently submitted reports to MoD which point out that the Services sector in India is very mature, considering that global OEMs have now been sourcing from it for decades. The sector has necessary mechanisms/processes in place for fair valuation and has also proposed further checks and balances.[50]

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45 Laxman K Behera, "Defence Offset Guidelines: Time to Correct the Imbalance," *IDSA Comment*, July 24, 2013, available at http://idsa.in/node/12476/33123

46 "Stung by Choppergate, MoD won't Accept Software, Other Services Under Offsets," *Times of India*, July 17, 2013, available at http://timesofindia.indiatimes.com/india/Stung-by-choppergate-MoD-wont-accept-software-other-services-under-offsets/articleshow/21113878.cms

47 Amit Cowshish, "Time-out for 'Services' from Offsets," *IDSA Comment*, June 19, 2013, available at http://idsa.in/idsacomments/TimeoutforServicesfromOffsets_acowshish_190613

48 "Defence Ministry's New Rule puts IT Cos' Seals worth $10 Billion in Peril," *Economic Times*, July 16, 2013, available at http://articles.economictimes.indiatimes.com/2013-07-16/news/40613550_1_defence-ministry-software-companies-indian-it

49 Conversations with Ketan Makhania, May 2014.

50 Conversations with Pritpal Chhinna, Note on Services in Defence Offsets, April 2014

Industry expert Pritpal Chhinna points out that that IT Services are a critical component in defence product development as they are at the heart of all modern Defence technologies, and suggests immediate action on two recommendations: first, collaboration by a foreign OEM towards sourcing of software/ engineering capabilities from an IOP should not only be permitted but also encouraged through multipliers; and second, for effective collaboration, restrictions imposed through export control regimes such as the International Traffic in Arms Regulations (ITAR) and the Export Administration Regulations (EAR) must be addressed by governments.[51]

Chhinna also notes that if India is serious about having a full-fledged domestic defence industry, then it is imperative to build capabilities from design to production facilities, all of which mandate a significant presence of IT components and services. Therefore, it is imperative that IT Services be considered part of the offsets policy.

It should be noted that about 18% of India's GDP derives from Computer Software and Services and India accounted for almost 9% of the world software and services market during the year 2012-13. It is estimated that software exports will grow at 13-15% in 2014-15.[52] Given the ascendant position of the IT sector in the economy, its strength must be leveraged for bolstering the defence industry in the country. Offsets will enable the IT sector in India to plug into the global production chains of defence companies. Inclusion and encouragement of IT services as part of the offsets policy will contribute to growth of indigenous R&D as well.

India's Ministry of Defence needs to devise appropriate policy frameworks and guidelines, in consultation with the IT/software industry, to address the possible misuse of offset provisions and establish accountability mechanisms to ensure compliance.[53]

3.5 Technology Transfers

While large scale defence imports may immediately enhance the capabilities of the defence forces, they constitute a short-term response. Moreover, such arms sales are subject to political and diplomatic vagaries. The uncertainty of downstream supply of spares is a constant factor in outright defence imports. Therefore, there have been growing demands from importing countries that defence companies should not only sell but must also transfer technology and participate in co-production and co-development of their weapons systems.

Technology transfer is a managed process to convey technology from one party to its adoption by another party.[54] However, for the process to be successful, the transfer should be complete with availability of necessary trained manpower to proactively use and further develop the technology that has been transferred.

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51 Ibid.,

52 Computer Software / Services and ITES Exports, *ESC*, available at http://www.escindia.in/uploads/soft%202013.pdf ; Asit Ranjan Mishra, "India's Net Services Exports Recover in Second Half of FY13," *Mint*, May 16, 2013, available at http://www.livemint.com/Politics/HIf8oEcNs5vDRMLrj0TSZJ/Indias-net-services-exports-recover-in-second-half-of-FY13.html

53 Laxman K Behera, "Defence Offset Guidelines: Time to Correct the Imbalance," *IDSA Comment*, July 24, 2013, available at http://www.idsa.in/idsacomments/DefenceOffsetGuidelines_lkbehera_240713

54 Wm. E. Souder, Ahmed S. Nashar, Venkatesh Padmanabhan, "A guide to the best technology-transfer practices," *The Journal of Technology Transfer*, Winter–Spring 1990, Volume 15, Issue 1-2, pp 5-16

Willingness of a country/defence company to provide complete transfer of technology (ToT) is only a part of the challenge. ToT also requires that regulatory frameworks should be flexible enough to allow defence companies to share technology with their partners expeditiously. There is a perception that the European regulatory environment is more flexible in allowing ToT by European defence companies to non-European countries as well.[55]

The India-US Joint Declaration on Defence Co-operation, concluded during Prime Minister Manmohan Singh's visit to Washington D.C. in September 2013, states that "the United States and India share common security interests and place each other at the same level as their closest partners." The reference to 'closest partners' has generated anticipation that the transfer of technology of advanced defence equipment would henceforth be much easier. A month later, the then Deputy Secretary of Defence, Ashton Carter, stated that India has been included in the list of the "so called Group of Eight" to receive sensitive technologies without export control.[56]

During a visit to New Delhi in September 2013, Carter also submitted a list of 10 defence technologies for transfer to India and reports indicated that this could be expanded to 90 in the near future.[57] Specifically, the US proposed co-development and co-production of the next generation of FGM-148 Javelin anti-tank guided missiles (ATGM).[58] Reportedly, the US is willing to transfer technology of most components of the Javelin, such as the warhead, rocket motor, propellant, guidance and seeker, but not the algorithms for guidance. [59] In the absence of transfer of critical components such as guidance algorithms, the ToT would be an incomplete process. While the full details of the Javelin proposal are yet to be released, it points to the challenges that come with ToT. Genuine co-development and co-production would require access to software/source codes, which should preferably be a critical component of any ToT process. In aircraft, these source codes are "referred to as the 'digital heart' of computer programs that control the aircraft and its related systems."[60] All this reinforces the importance of unambiguous technology transfer arrangements, which are agreeable to both sides.

Access to source codes is critical but concerns about intellectual property rights should also be factored in. Often, these concerns tend to dampen the enthusiasm for ToT processes. The World Intellectual Property Rights Bank (WIPR Bank)[61] points out that "illegal sharing of software codes, blueprints, specifications, industrial designs, trade secrets and confidential knowhow; patent and design infringe-

55 Carola Hoyos, "Europe Defence Groups Urge Technology Sharing," *Financial Times*, October 13, 2013, available at http://www.ft.com/intl/cms/s/0/48107f02-31bf-11e3-a16d-00144feab7de.html#axzz2tYY9v8tF

56 "US Submits List of 10 Defence Technologies for Transfer to India," *Times of India*, October 02, 2013, available at http://timesofindia.indiatimes.com/india/US-submits-list-of-10-defence-technologies-for-transfer-to-India/articleshow/23405768.cms

57 Ibid.

58 James Hardy, 'Carter promises India joint development of Javelin and EMALs', *IHS Jane's 360*, September 18, 2013, available at http://www.janes.com/article/27208/carter-promises-india-joint-development-on-javelin-and-emals

59 Vivek Raghuvanshi, 'India Pursues Indigenous ATGM Amid Javelin Talks', *Defense News*, October 3, 2013, available at http://www.defensenews.com/article/20131003/DEFREG03/310030019/India-Pursues-Indigenous-ATGM-Amid-Javelin-Talks

60 Janet Tappin Coelho, "French President Pledges 100% Technology Transfer to Back Dassault F-X2 Bid," *IHS Jane's*, December 12 , 2013, available at http://www.janes.com/article/31549/french-president-pledges-100-technology-transfer-to-back-dassault-f-x2-bid

61 Ajay Batra, "Will MMRCA and Other Defence Contracts Deliver Technology and Intellectual Property Transfers to Indian Industry?" *World Intellectual Property Rights Bank (WIPRBank)*, January 16, 2014, available at http://www.wiprbank.com/will-mmrca-and-other-defence-contracts-deliver-technology-and-intellectual-property-transfers-to-indian-industry/

ment; and piracy and copyright violations," are often regarded as one of the high risks that tend to negatively impact ToT processes. Not surprisingly, even though Britain, Italy, the Netherlands, Turkey, Canada, Australia, Denmark and Norway have co-financed F-35 development, the US has been unwilling to share sensitive software codes (considered as a "kind of holy grail") with these countries, including its closest ally Britain.[62]

The U.S. Navy variant of the F-35 Joint Strike Fighter
Source: Wikimedia Commons[63]

If Britain has had to face challenges on source/software code issues with the US, as the scale of ToT interactions between India and the US increases, issues of IPRs may assume greater significance. So far, foreign defence companies seem to have been happy with IPR frameworks in India. In a submission to the US Trade Representative (USTR), Boeing stated that "Indian IPR laws applicable to the range of Boeing's business activities in India are comparable to IPR regulations in other developed countries, as India is a signatory to all major conventions and treaties on this subject."[64] Similarly, another American company, Honeywell, noted: "Our experience is that an acceptable IPR legal framework exists in India with laws and regulations that are comparable to IPR regulations in other developed countries."[65]

62 Jim Wolf, "U.S. to Withhold F-35 Fighter Software Code," *Reuters*, November 24, 2009, available at http://www.reuters.com/article/2009/11/25/us-lockheed-fighter-exclusive-idUSTRE5AO01F20091125
63 http://commons.wikimedia.org/wiki/File:CF-1_flight_test.jpg?uselang=en-gb
64 "US Defence Giants Back India's IPR Regime as Big Pharma Frets," *The Financial Express*, March 12, 2014, available at http://www.financialexpress.com/news/us-defence-giants-back-india-s-ipr-regime-as-big-pharma-frets/1232784
65 Ibid.

Until recently, transfer of technology was not considered as eligible for defence offset provisions. In 2012, a new policy was formulated which permits ToT to be counted as an offset and there is an expectation that this may give a fillip to ToT in the defence sector. However, there are concerns that India is not in a position to absorb the transfer of advanced technologies. As US Senators John Cornyn and Mark Warner have noted: "India continues to have heightened expectations for technology transfer and India offset requirements have slowed defense trade. Because much of the Indian offset market is saturated, American defense firms increasingly find it difficult to locate areas in which to invest."[66]

Some of the 'technology transfer' appears to have involved nothing more than assembling of imported components, rather than manufacture from raw material, and have led to delays and increased cost.[67] Therefore, ToT proposals must be approached not merely from the perspective of what is being offered but also from the perspective of what can be achieved with the technology received. The TOT proposals should be in consonance with "Technology Perspective and Capability Road Map"[68] and the "15-year Long-Term Integrated Perspective Plan (LTIPP)"[69] from 2012 to 2027 which were articulated by MOD. The possibility of proactively collaborating with the private sector in making full use of transferred technologies that have been purchased by the government should be considered. Related to absorption capacities is the need for appropriate training to handle new technologies across production lines, which is critical to fully utilise such technology. The inter-related issues of economies of scale and exports should also be factored into TOT proposals. For example, the economies of scale may not work if a TOT is operationalised for the manufacturing of a few thousand Javelins for the Indian defence forces. On the other hand, if India is allowed to export to other countries, then investing in high-end TOT proposals would reap profits on investments.[70]

3.6 Small and Medium Enterprises

Small and medium enterprises (SMEs) play a significant role in the economy and they account for almost 90 per cent of enterprises in India. It would be imprudent to dismiss the SMEs as not suitable for the defence industry because of their scale. Even in sectors such as aerospace, SMEs have been supplying critical components. For example, approximately 300 SMEs have worked on the Tejas project.[71] Overall, in the defence sector there about 6,000 vendors; 95 per cent of these vendors belong to the SME sector, and account for 20-25 per cent of the output of the DPSUs.[72]

66 "Two American Senators Call for Strong Indo-US Defence Ties," *The Economic Times*, March 30, 2014, available at http://articles.economictimes.indiatimes.com/2014-03-30/news/48704930_1_senate-india-caucus-senators-john-cornyn-defense-ashton-carter

67 "Tejas, Brahmos, Arjun and Other Defence Showpieces Powered by Imported Parts," *The Economic Times*, January 13, 2014, available at http://m.economictimes.com/news/politics-and-nation/tejas-brahmos-arjun-and-other-defence-showpieces-powered-by-imported-parts/articleshow/28731182.cms

68 'Technology Perspective and Capability Road Map (TPCR)', Headquarters Integrated Defence Staff, Ministry of Defence, April 2013, available at https://mod.gov.in/writereaddata/TPCR13.pdf

69 'Perspective Plan for Armed Forces', *Press Information Bureau*, Government of India, Ministry of Defence, August 13, 2012, available at http://www.pib.nic.in/newsite/erelease.aspx?relid=86013

70 Inputs from Brig Arun Sahgal, May 2014.

71 "SMEs Target $100b Defence Programmes," *Times of India*, February 18, 2012, available at http://lite.epaper.timesofindia.com/mobile.aspx?article=yes&pageid=17&sectid=edid=&edlabel=ETD&mydateHid=18-02-2011&pubname=&edname=&articleid=Ar01700&publabel=ET

72 "Enhancing Role of SMEs in Indian defence industry," *Report of Ernst & Young Pvt. Ltd and CII, 2009*, available at http://www.cii.in/webcms/Upload/Enhancing%20role%20of%20SMEs%20in%20Indian%20defence%20industry1.pdf ; also see Rituparna Bhuyan & Siddharth Zarabi, "Venture Fund for Defence Firms," *Business Standard*, February 21, 2008, available at http://www.business-standard.com/article/sme/venture-fund-for-defence-firms-108022101087_1.html

SMEs offer flexibility, diversity and low cost inputs; up-gradation of technology is also far easier than in bigger units.[73] However, they face numerous challenges that include access to finance to fund high capital expenditure, lack of scale and inability to go in for projects with long gestation periods.[74] Therefore, hand-holding measures such as access to easy credit, provision of tax holiday/rebate, a friendlier import-export regime and "designated vendor" processes would enable SMEs to produce at lower costs, maintain international quality standards and adhere to tight delivery schedules.[75]

To give a fillip to SME participation in the defence sector, they have been included in the revised defence offset guidelines in 2012. Importantly, the guidelines note that in case SMEs are Indian offset partners in the discharge of offset obligations, a multiplier of 1.50 will be permitted for calculating offsets.[76] There is now greater incentive for foreign companies to work with SMEs in India; yet, there are concerns that in spite of positive changes in policy, SMEs have not benefited.

In order to ensure that SMEs take advantage of offset guidelines, there is need to proactively spread awareness on policy and regulatory issues among them. There is also need to facilitate constant flow of information on business opportunities, intellectual property rights (IPRs) and related issues. This would go a long way to augment SME participation in the defence sector. The possibility of the Defence Research & Development Organisation (DRDO) acting as a bank of new technologies and innovations that can be individually licensed out to suitable SMEs for production can be considered.[77]

Many of the SMEs have demonstrated a genuine desire for working on cutting edge defence technologies and are often led by entrepreneurs who are passionate about creating niche products for the defence industry. In the recent past, SMEs have demonstrated their capability to partner in the development of advanced technologies such as unmanned aerial vehicles.[78] Therefore, simplification of license procedure and financing of private sector participation in Research and Development (R&D) would enable SMEs to contribute value addition in the defence sector.[79] Similarly, expeditious granting of no objection certificates for defence exports will enable SMEs to meet the stringent delivery schedules of the international market.[80] Doubts about whether there would be a steady stream of contracts acts as a dampener and this needs to be addressed through "designated vendor" processes. Besides, an enhanced FDI cap will bring in more choices for SMEs in terms of international collaboration.

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73 "Enhancing Role of SMEs in Indian defence industry," *Report of Ernst & Young Pvt. Ltd and CII, 2009*, available at http://www.cii.in/webcms/Upload/Enhancing%20role%20of%20SMEs%20in%20Indian%20defence%20industry1.pdf

74 "Report of Working Group on Aerospace Sector," *Planning Commission, 2013*, available at http://planningcommission.gov.in/aboutus/committee/wrkgrp12/wg_aerospace%20_sector.pdf

75 "SMEs not Enjoyed Benefits of Defence Offsets, Govt Support," *SME Times*, November 07, 2013, available at http://www.smetimes.in/smetimes/news/top-stories/2013/Nov/06/smes-not-enjoyed-benefits-of-defence-offsets-govt-support603514.html

76 "Defense Procurement Procedure 2011 – Revision of Defense Offset Guidelines," *Department of Defense Production,* August 01, 2012, available at http://ddpmod.gov.in/showfile.php?lid=95

77 "2012: Revised Defence Offset Policy Helps SMEs" *Support Biz*, December 28, 2012, available at http://www.supportbiz.com/articles/vertical-view/2012-revised-defence-offset-policy-helps-smes.html

78 "Now, SMEs Help Power India's Next Generation Unmanned Aerial Vehicle Rustom," *The Economic Times*, September 25, 2010, available at http://articles.economictimes.indiatimes.com/2010-09-25/news/27607200_1_aeronautical-development-establishment-ade-drdo

79 Ganesh Raj, "Guns and Thorns," *The Financial Express*, January 21, 2011, available at http://www.financialexpress.com/news/guns-and-thorns/740229/1

80 "Remove Hurdles in the way of SMEs in Defence Exports: CII," *The Statesman*, January 10, 2014, available at http://www.thestatesman.net/news/33696-Remove-hurdles-in-the-way-of-SMEs-in-defence-exports--CII.html

Table 3: SMEs – SWOT Analysis[81]

Strengths	SMEs are regarded as the 'engines that spearhead technological advancement". *- Force, October 2012* SMEs can be more flexible and spontaneous in response. *- Hindu Business Line, April, 2012*	SMEs have the capability to participate and take ready decisions in defence production. SMEs have fast turnaround time, display more personal commitment, faster decision making capability and is amenable to training. *- Hindu Business Line, April 25, 2012*
Weaknesses	The scope for mass production is limited and there are fewer incentives for SMEs private company to create infrastructure or dedicate manpower. *– Hindu Business Line, April 25, 2012* SMEs often tends to be inward looking and do not have access to beneficial information and business management tools to enhance their businesses. *- Ernst & Young and CII*	SME sector faces limited access to alternative sources of finance. Access to information, simplification of loan procedures and interest subvention for micro enterprises are enabling features for timely and affordable credit to MSMEs *- Planning Commission Report 2012*
Opportunity	SMEs can benefit from the offset obligation of defence deals. *- Rediff News, 2008* Large and growing domestic market, outsourcing of defence manufacturing, indigenization thrust from government of India and defence offset policy—all these factors contribute towards the growth of SMEs. *- Ministry of Defence, 2012*	Huge ammunition shortages are adversely affecting operational readiness and training and hence it creates a space for greater participation of Indian defence SMEs. *- Times of India, March 2014* Indian SMEs are expected to benefit from a government target of sourcing 70% of defence requirements from indigenous sources by 2010. *- Economic Times, June 2008*
Threats	Several threats facing the Indian defence SMEs sector are high R&D cost, lack of access to critical technologies and volatile markets. The Defence industry being volatile in nature, several small companies find it difficult to commit adequate funds for R&D in the absence of guaranteed business at the end of the development cycle. *- ELCINA.com, July 2012*	Another challenge to the SMEs is development of high technology military hardware in low volumes. Low volumes of high technology equipment are highly unattractive for sale to qualified vendors. *- ELCINA.com, July 2012* SMEs are also witnessing increased competition in domestic and export markets. *- Ernst & Young and CII Report*

81 Source: Maj. Gen Mrinal Suman, "Win- Win Alliance", *FORCE*, October 2012, available at http://www.forceindia.net/dpp_Win-Win_Alliance.aspx ; Joseph Babatunde Fagoyinbo, "The Armed Forces: Instruments of Peace, Strength, Development and Prosperity", Pg 432; M. Somasekhar, "Agni V: Fired by domestic industry", Hindu Business Line, April 25, 2012, available at http://www.thehindubusinessline.com/opinion/agni-v-fired-by-domestic-industry/article3353162.ece ; 'Enhancing the Role of SMEs in the Indian Defence Industry', Ernst & Young and CII, pg 12, available at http://www.cii.in/webcms/Upload/Enhancing%20role%20of%20SMEs%20in%20Indian%20defence%20industry1.pdf; 'The Manufacturing Plan: Strategies for Accelerating Growth of Manufacturing in India in the 12th Five Year Plan and Beyond', Planning Commission, Government of India, 2012, page 102, available at http://planningcommission.gov.in/aboutus/committee/strgrp12/str_manu0304.pdf ; "Venture funds for defence firms", Rediff News, February 21, 2008, available at http://www.rediff.com/money/special/venture/20080221.htm; 'Palam Raju says Govt keen on Joint Ventures, SMEs participation in Defence sector', Press Information Bureau, Government of India, March 29, 2012, available at http://pib.nic.in/newsite/erelease.aspx?relid=81879; Rajat Pandit, "Army running low on ammunition", Times of India, March 24, 2014, available at http://timesofindia.indiatimes.com/india/Army-running-low-on-ammunition/articleshow/32569909.cms ; "VC's now take a shot at defence at defence sector", Economic Times, June 18, 2008, available at http://articles.economictimes.indiatimes.com/2008-06-18/news/27720548_1_defence-production-defence-equipment-india-rizing-fund ;

MV Reddy, "Potential for SMEs in defence sector", *Astra Microwave Products Limited*, July 27, 2012, available at http://www.elcina.com/SES-2012-presentations/MV-Reddy-Astra-Microwave.pdf ; 'Enhancing the Role of SMEs in the Indian Defence Industry', Ernst & Young and CII, pg 12, available at http://www.cii.in/webcms/Upload/Enhancing%20role%20of%20SMEs%20in%20Indian%20defence%20industry1.pdf; Note on "Opportunities for SMEs in Indian Defence Sector" CII, available at http://www.ciidefence.com/events/MSME_DEFENCE/SME_Flyer.pdf

3.7 Access to Facilities

Most recently, the government issued a Request for Proposal (RFP) to replace the IAF's aging fleet of Avros with new aircraft. The proposal stated that the original equipment manufacturer (OEM) must partner with a local Indian private sector company. However, the fact that almost no Indian private company has access to facilities such as airfields with adequate infrastructure and that constructing a green field air production facility would be a very expensive proposition are obvious limitations.[82] While the RFP has been issued to enable greater private sector participation in defence production, the silence on measures such as providing access to airfields to test equipment has resulted in uncertainty regarding how the proposed policy will be operationalised.

On similar lines, columnist Karthikeyan Sundaram points out that some private companies which have been planning to build a prototype of the howitzer gun, may run into difficulties as current regulations prohibit testing of these guns in military facilities.[83] While there is possibility of 100 per cent domestic private investment in the defence sector, the absence of necessary guidelines to allow testing of weapons systems by private agencies at various testing ranges needs to be addressed immediately.

3.8 Definitions and Legal Frameworks

The guidelines pertaining to defence production and acquisition tend to constantly evolve. Often, the pace of change in the policy frameworks tends to be rapid, creating numerous challenges. Deba Mohanty points out that many of the policy statements have vaguely worded procedural requirements or insufficiently explained provisions such as "Transfer of Technology, i.e. purchase from foreign vendor followed by Licensed Production," which tend to make the procurement process complicated.[84] Similar concerns have been raised regarding what constitutes a 'defence product/item'. Given changes in policy frameworks, there is need to harmonise inter-departmental guidelines within the Government of India. Simultaneously, it is necessary to harmonise domestic laws with international regimes, as well as with intended partner countries such as the US.

3.9 Fine-Tuning Policy and Administrative Frameworks

Enhancing the capacities of the domestic defence industry and facilitating healthy defence partnerships with friendly countries mandates clear articulation of a comprehensive security strategy. Gurmeet Kanwal calls for the formulation of a comprehensive National Security Strategy (NSS), which will ensure that "various stakeholders take ownership of the strategy and work unitedly to achieve its aims and

82 Ajai Shukla, "Replacing the Avro: Private Defence Companies see Failure Ahead in First Aircraft Building Project," *Business Standard*, June 12, 2013, available at http://ajaishukla.blogspot.in/2013/06/avro-replacement-programme-private.html

83 Karthikeyan Sundaram, "Bharat Forge's Howitzers to Test Defence Policy," *Mint*, July 08, 2013, available at http://www.livemint.com/Politics/R5pa4L1K7j2CayM5pBGr0I/Kalyani-Groups-Howitzers-will-test-defence-policy.html

84 "India's Defence Sector Still Plagued by Corruption," *ISN ETH Zurich*, February 13, 2014 available at http://www.isn.ethz.ch/Digital-Library/Articles/Detail/?lng=en&id=176507

objectives."[85] The National Security Council (NSC) can consider issuing a "strategic guidance" document which forms the basis for a Strategic Defence Review. Currently, the only guidance that the services receive is the five yearly "RM's Operational Directive and 15 year Long Term Integrated Perspective Plan (LTIPP)". These are not clearly adequate and do not take into account a constantly changing security environment and force application models. Simultaneously, it is necessary to create a pool of civil servants and defence management experts (trained in technology assessments, contract negotiations and other associated disciplines) who represent the Defence Ministry in its engagement with the defence industry. Identifying and developing such resource personnel within the system will bring down unwarranted delays in the decision-making process.

Finally, long-projected reforms such as the creation of a Chief of Defence Staff and the integration of Services personnel alongside civilians in the Defence Ministry, are necessary to establish well-considered and balanced priorities for defence acquisitions.

3.10 Public Sector Units

Defence public sector units (DPSUs) have been subjected to criticism for delays and failing to ensure adequate indigenisation.[86] It should be remembered that most of the DPSUs were initiated in the context of the Cold War when the possibility of India receiving advanced weapons technology was limited. The DPSUs must quickly adapt to the changes in the geo-political environment, the emergence of the Indian private sector in the defence sector and their joint ventures with foreign companies. In coming years, DPSUs will be subjected to greater demands for increased productivity, reduced timelines, enhanced technological innovation and proactive interactions with the defence forces. This calls for better alignment and coordination among different constituencies (e.g., DRDO and the Services) that work on defence procurement and production issues.

Significant amounts of research and development funding is allocated to the Defence Research and Development Organisation (DRDO), which receives about five per cent of the defence budget, although it has been asking for an allocation of seven per cent.[87] Currently, design and development facilities are divorced from production facilities, a major lacuna which needs to be addressed. This will ensure that designing and producing high technology weapons systems at competitive cost is achieved simultaneously.

3.11 The need for a long-term vision

The Indian government needs to take several policy decisions which facilitate strong global partnerships and strengthened domestic defence capacities. There is also a need for the US and other international defence companies to invest in India with a long-term vision, instead of the contract-based approach they largely follow at present. Getting embedded in India will result in lasting gains both for India

85 Brig (Retd.) Gurmeet Kanwal, "Management of National Security: Agenda for the New Government," *Vivekananda International Foundation*, February 24, 2014, available at http://www.vifindia.org/article/2014/february/24/management-of-national-security-agenda-for-the-new-government

86 Rajat Pandit, "Desi Defence Showpieces Powered by Videshi Parts," Times of India, January 13, 2014, available at http://timesofindia.indiatimes.com/india/Desi-defence-showpieces-powered-by-videshi-parts/articleshow/28720189.cms

87 Ajai Shukla, "Defence Spend Lowest Since 1962 War," *The Business Standard*, February 21, 2014, available at http://www.business-standard.com/article/economy-policy/defence-spend-lowest-since-1962-war-114022001397_1.html

and US defence companies. It is also necessary that the Indian private sector and international defence companies do not see each other merely as competitors, since there is enough space for both to operate. Creating a vibrant domestic defence industry that enjoys healthy collaboration and competition with global defence companies requires immediate action on the recommendations suggested below:

- Ensuring convergences between India's civil and defence needs, and a focused approach on creating a multi-tiered vendor structure, is critical for creating a proper eco-system for the domestic defence industry to emerge.
- Increasing FDI from the current limit of 26 to at least 49 per cent, and then graduating to higher levels of 51 per cent, 74 per cent and 100 per cent, will enable infusion of capital and the latest technologies.
- Clearly articulating policy that encourages defence exports, providing access to international markets for domestic and foreign companies operating out of India. Indian companies, joint ventures and Multinational corporations bringing in foreign direct investment (FDI) should be able to export weapons systems or components manufactured in India, in accordance with national export controls that conform to the relevant international regimes.
- The defence offsets policy should be guided by a strategic vision, pre-identified priority areas and core competencies that need to be nurtured in the defence industry. Constitution of a National Commission on Offset Resources[88] can provide the necessary framework to pursue offsets in a strategic manner.
- Restrictions placed on offsets related to services should be lifted. Permitting a foreign OEM to source software engineering capabilities from an IOP should not only be permitted but also actively encouraged.
- Greater engagement with the private sector in making full use of transferred technologies that have been purchased by the government, increasing absorption capacities and maintaining a healthy IPR regime will encourage the ToT processes.
- TOT proposals should largely be in consonance with the 'Technology Perspective and Capability Road Map' and the 'LTIPP' approved by the Ministry of Defence.
- Increasing awareness about policy/regulatory frameworks, simplification of licensing procedures, and "designated vendor" processes will facilitate the greater presence of SMEs in the defence sector as a vital source of technology and innovation.
- The number of private players and joint ventures in the defence sector has registered an increase in the recent past. Their need to access defence infrastructure, such as defence airfields and testing facilities, needs to be urgently addressed.
- Formulation of a comprehensive National Security Strategy (NSS), the installation of a Chief of Defence Staff, and the creation of a pool of civil servants and defence management experts (trained in technology assessments, contract negotiations and other associated disciplines) will ensure that the momentum of defence modernisation is maintained as per long-term defence plans.

88 S. Amer Latif, "Defense Offsets in India," *CSIS*, August 16, 2012, available at http://csis.org/publication/defense-offsets-india

ABBREVIATIONS

AoN	Accord of Necessity
ASW	Anti-Submarine Warfare
ATGM	Anti-Tank Guided Missile
BDL	Bharat Dynamics Limited
BECA	Basic Exchange and Cooperation Agreement for Geo-spatial Cooperation
BIT	Bilateral Investment Treaty
CII	Confederation of Indian Industry
CIJW	Counter-insurgency and Jungle Warfare School
CISMOA	Communication Interoperability and Security Memorandum of Agreement
DoD	Department of Defence
DOMW	Defence Offsets Management Wing
DPP	Defense Procurement Procedure
DIPP	Department of Industrial Policy & Promotion
DPSUs	Defence Public Sector Units
DRDO	Defence Research and Development Organisation
EAR	Export Administration Regulations
FDI	Foreign Direct Investment
FICCI	Federation of Indian Chamber of Commerce and Industry
GDP	Gross Domestic Product
HAL	Hindustan Aeronautics Limited
IAF	Indian Air Force
IOP	Indian Offset Partner

IPR	Intellectual Property Rights
ISRO	Indian Space Research Organization
IT	Information Technology
ITAR	International Traffic in Arms Regulations
LCA	Light Combat Aircraft
LeT	Laskhar-e-Taiba
LSA	Logistics Support Agreement
LTIPP	Long-Term Integrated Perspective Plan
MOD	Ministry of Defence
MRO	Maintenance, Repair and Overhaul
MSMEs	Micro, Small and Medium Enterprises
MTCR	Missile Technology Control Regime
NPCIL	Nuclear Power Corporation of India Limited
NSC	National Security Council
NSS	National Security Strategy
OEMs	Original Equipment Manufacturers
R&D	Research & Development
RFP	Request for Proposal
RIMPAC	Rim of the Pacific
SIPRI	Stockholm International Peace Research Institute
SLOCs	Sea Lines of Communication
SMEs	Small and Medium Enterprises
ToT	Transfer of Technology
UN	United Nations
UNSC	United Nations Security Council
USIBC	US-India Business Council
USTR	US Trade Representative
WIPR Bank	World Intellectual Property Rights Bank
WTO	World Trade Organization

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