IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

An Analytical Study Of Indian Defence Industry

Daksha

Professor

Smt.M.M.P.Shah Women's College of Arts and Commerce

Introduction:

Since coming to power in 2014, Prime Minister Narendra Modi's government has made a rigorous effort to develop the Indian arms sector and shift the country's image from the world's largest arms importer to a significant exporter of defense equipment. To achieve this goal, the government has launched numerous reform initiatives through the 'Make in India' initiative and the 'Atmanirbhar Bharat Abhiyan' (self-reliance India mission). These initiatives affect almost every aspect of the Indian defence sector, including structures, acquisition processes, industry laws, and budgetary requirements. The administration is optimistic that the reform measures will serve as a catalyst, assisting the local sector in meeting the government's aim of achieving INR nearly triple India's total annual defence production to Rs 3 lakh crore by 2028-29. The target for defence exports is more than double at Rs 50,000 crore as against Rs 21,083 crore at present.

Another great concern that has been often cited by the experts is the import of not only the final defense products but also the intermediate goods such as parts and raw materials. The total value of all these imported intermediate goods is about 62% of the total sales of DPSUs and OFs combined. Not only material but technology is also transferred or imported. HAL, the largest DPSU, could achieve only 53% of indigenization by value in the context of LCA Tejas 9

Research Methodology:

Entire study is based on secondary data. Sources of data are books, periodical, research papers, Government report and websites.

Objectives of the Study:

1) To discuss the significant of the defence industry
2) To evaluate the defence sectors reforms
3) To examine the performance of defence industry
4) To describe the various challenges facing by defence sector
5) To suggest some remedies for the same.

Indian Defence Industry is a Significant Player;

This paper examines the success of India's defence sector by evaluating important reform measures implemented over the last decade. It also evaluates the enormous hurdles that India's defence industry faces as it strives for self-reliance. Essentially, it aims to answer two critical questions: To what extent has the government's goal been met? What are the issues facing the Indian arms sector, which has traditionally been regarded a laggard?

Historically, public sector firms dominated the Indian military-industrial complex, but rising private players are gradually gaining ground. The public sector has dominated production and R&D. The key entities in the production domain are the 16 defense public sector undertakings (DPSUs), seven of which were converted from former ordnance factories (OFs) in October 2021. The Ministry of Defence (MoD) administers these DPSUs.

Among the nine previous DPSUs, four—Mazagon Dock Shipbuilders Limited, Garden Reach Shipbuilders and Engineers, Goa Shipyard Limited, and Hindustan Shipyard Limited—are dedicated shipyards that manufacture various types of warships for the Indian Navy and Coast Guard. Each of the remaining five old DPSUs specializes in a specific domain: Hindustan Aeronautics Limited (aircraft), Bharat Electronics Limited (electronics), Bharat Dynamics Limited (missiles), Mishra Dhatu Nigam Limited (special alloys), and BEML Limited (vehicles and earth moving equipment).

In addition to the 16 DPSUs, the MoD is in charge of the defense Research and Development Organization (DRDO), the primary defence R&D agency. The DRDO, founded in 1958, is responsible for developing technology for both strategic and conventional weapons. With a workforce of 21,730 (including 6,713 scientists and engineers) and a budget of INR 238.55 billion (approximately US$2.86 billion) in 2024-25, its R&D activities cover almost every aspect of defense technology, including strategic and conventional missiles, combat aircraft, tanks, gun systems, electronics, naval systems, and life sciences.

Aside from the MoD's direct management, there are many government-owned firms that are largely commercial but also produce a few defense-related things. The most prominent is Cochin Shipyard Ltd (CSL), a public-sector organization (PSU) that built India's first indigenous air carrier. It is currently administered by the Ministry of Ports, Shipping, and Waterways.

Aside from DPSUs and PSUs, there are other defense-related joint ventures (JVs) between MoD-controlled companies (DPSUs or DRDO) and international partners. The largest joint venture in the defense arena is BrahMos Aerospace; founded in 1998 between DRDO and a Russian collaborator, its turnover reached INR 33.32 billion (about US$415 million) in 2022–23.

In comparison to the state sector, private enterprises are relatively fresh entrants into the defense industry market. The private sector was forbidden from participating in defense production until 2001, when the industry was opened up. Following liberalization, particularly following the beginning of the Make in India initiative in 2014, India's private sector has grown significantly. As of 2022-23, it accounted for almost 20% of India's overall defence production (see Table 1) and, as detailed later in this brief, accounts for the vast majority of India's defense exports.

Table 1:

India's Defence Production

Financial Year	DPSUs (INR billion)	OFs (INR billion)	Other PSUs and JVs (INR billion)	Private Companies (INR billion)	Total Production (INR billion)
2016-17	404.27	148.25	46.98	141.04	740.54
2017-18	434.64	148.29	51.80	153.47	788.20
2018-19	453.87	128.16	55.67	173.50	811.20
2019-20	476.55	92.27	62.95	158.94	790.71
2020-21	467.11	146.35	60.29	172.68	846.43
2021-22	557.90	119.13	72.22	199.20	948.45
2022-23	634.66	169.98	71.37	210.83	1086.84

Note: Financial year runs from April to March

Source: Ministry of Defence

It is worth emphasizing that the government must approve the private sector's engagement in defense manufacture through an industrial licensing process. As of April 2023, the government had given 606 licenses to 369 enterprises. Most major Indian private conglomerates, including Tata Group, Larsen & Toubro (L&T), Mahindra, and Bharat Forge, engage in some type of defense manufacture. Some of the big-ticket products being made (or contracts won) by the private sector include transport aircraft (Tata), artillery cannons (L&T, Tata, and Bharat Forge), and Pinaka rocket launchers (Tata and L&T), among others. L&T has obtained two contracts with the MoD for high-powered radar and a close-in-weapon system, totaling INR 133.69 billion (roughly).

While the DPSUs, DRDO, and large private firms constitute the backbones of India's defense industry, they are bolstered by an increasing number of micro, small, and medium-sized enterprises (MSMEs) and start-ups. As of January 2023, 14,000 MSMEs and 329 startups are involved in defense manufacture in India.

Defence Industry Reforms towards Self-Realization:

Despite possessing a large defense R&D and production base, the Indian defence sector has historically been limited in satisfying the needs of the armed forces, forcing the government to rely on imports. India was the world's largest arms importer between 2019 and 2023, accounting for 9.8 percent of total worldwide arms imports. This was a small increase from the 14-18 periods (9.1 percent), when India was the world's second-largest armaments importer.

The Modi government has implemented a number of changes to reinvigorate India's armaments industry and reduce import dependency. The reform efforts implemented under the general make in India initiative and

the Aatmanirbhar Bharat Abhiyan address institutional, procedural, industrial, and budgetary aspects of defense industry. Some of the significant steps made over the last ten years are:

Institutional Reforms:

In 2019, the government established the position of Chief of Defence Staff (CDS), which is regarded as the most significant defense reform since independence. Though the measure was intended to foster synergy in the running of the military forces, which are sometimes accused of operating in silos, the CDS charter and the newly established Department of Military Affairs (DMA) under the CDS have far-reaching implications for defence indigenization. Among its functions, the CDS is also tasked with "promoting the use of indigenous equipment by the Services."

In effect, establishing the role of the CDA/DMA transforms the armed forces into equal and integral stakeholders in indigenous weaponry projects, breaking down the contentious relationship between users and developers and producers. Rising to the challenge, the CDS-led DMA has so far released five lists of over 500 items that will be prohibited from import after a specified time period. In other words, these products will eventually be made in India. These lists include some high-ticket goods, such as missiles, fighter aircraft, helicopters, warships, radars, and various ammunition.

Following the nomination of the CDS and the establishment of the DMA, the government announced the long-awaited corporatization of the OFs, which were formerly used as a government arsenal. The decision included transforming 41 OFs into seven separate DPSUs. As corporate organizations, the new DSPUs will have greater decision-making autonomy and will be held accountable for their performance. Corporatization is also the initial step toward further reforms, which can be carried out by consolidating DPSUs into fewer ones, listing them on stock exchanges (to strengthen corporate governance), or privatizing them if the government so wants.

Acquisition Reforms:

To strengthen the domestic industry's role in the procurement process, the government has revised the arms procurement methods outlined in the Defence Acquisition Procedure (DAP). The major reform in the DAP is to further rationalize procurement categories by prioritizing indigenous industry over international companies. Of the five prioritized procurement categories, the domestic industry is awarded the function of system integrator in the first three (see Table 2). In other words, for contracts awarded under these categories, foreign companies will play a secondary role as equity partners with Indian firms in charge of contract implementation. Foreign equity ranges from a maximum of 49 percent (in the first category, when domestic industry is expected to design and manufacture) to 74 percent (in the following three priority categories).

Table 2: Prioritized Defence Procurement Categories

Prioritized Category	Indigenous Content (IC) Requirement	Tender issued to	Maximum FDI allowed under automatic route
Buy (Indian-IDDM)	Indigenous Design & IC of ≥ 50%	Indian	49%
Buy (Indian)	50% IC if Indigenous Design; Otherwise, IC of ≥ 60%	Indian	74%
Buy and Make (Indian)	≥50% IC in Make Portion	Indian	74%
Buy (Global-Manufacture in India)	IC of ≥50%	Foreign	74%
Buy (Global)	Foreign Vendor- NIL Indian Vendor ≥30% IC	Foreign/Indian	NA (Foreign); 74% (Indian)

Source: Compiled from Ministry of Defence, Defence Acquisition Procedure 2020.

The government's efforts to demand more indigenous content (IC) in different domestic industry-friendly procurement categories, including parts, components, raw materials, and software, are an important aspect of the acquisition reform. The minimum IC required from the first four priority categories is 50%, which is much greater than the 30% demanded prior to the commencement of the Make in India campaign. The administration is also hopeful that IC can be improved further in certain categories. A clear indication of this was provided by the Indian defense minister, who, in late 2023, instructed the CDS and the Defence Secretary to consult the industry and "work towards increasing" the IC of Indigenously Designed, Developed, and Manufactured (IDDM) categories—the first prioritized procurement category—projects to a minimum of 60-65 percent.

Aside from allowing the industry to take more responsibility for manufacturing, the government has attempted to incentivize it to conduct R&D, an area traditionally dominated by the DRDO and, to a lesser extent, the DPSUs. The government has simplified and expanded the DPP/DAP's 'Make' principles, as well as introduced two innovation-oriented schemes: Innovation for Defence Excellence (iDEX) and the Technology Development Fund (TDF) (see Table 3).

Furthermore, the Union Budget 2022-23 allocates 25% of the R&D budget to business, entrepreneurs, and academics.[14] Following the declaration, the MoD has chosen 18 important projects whose design and development will be led by the Indian sector.

Table 3

Make and Innovation Categories

Category		Features	Maximum FDI allowed under automatic route
Make	Make-I	Up to 70% government funding for prototype development, subject to a maximum of INR 2.5 billion (approximately US$30 million) per development agency. After successful development, procurement will be through the Buy (Indian-IDDM) route.	49%
	Make-II	Self-funded by the industry for prototype development. After successful development, procurement will be through the Buy (Indian-IDDM) route. Industry can submit a suo-moto proposal.	49%
	Make-III	Primally intended for import substitution of product support of existing weapons systems. Post successful development, procurement through the Buy (Indian) route	74%
iDEX		Primarily intended for startups, individual innovators and MSMEs. Innovators can submit suo-moto proposals. Post successful development, procurement through the Buy (Indian-IDDM) route	49%
TDF		A scheme runs by DRDO with funding support. After successful development, procurement will be through the Buy (Indian-IDDM) route.	49%

Source: Compiled from Ministry of Defence, Defence Acquisition Procedure 2020.

Ease of Doing Business Reform:

Soon after taking office in 2014, the Modi government implemented a number of initiatives to increase the ease of doing business, particularly in the private sector. The government expedited the industrial licensing process for the private sector, allowing it to secure official approvals with minimal bureaucratic fuss. This was quickly followed by liberalizing the defence foreign direct investment (FDI) system by raising the previous foreign equity cap from a maximum of 26 percent under the automatic route to 49 percent and then 74 percent. FDI liberalization has resulted in an influx of INR 57 billion (about $609 million) until 2024.

The government has also issued a standard operating procedure to formalize the process of defence export authorization; allowed the private sector to test their equipment at government-run facilities; established two defence industrial corridors; established a single-window agency (the Defence Investor Cell) to address investors' concerns; and announced a policy to facilitate the indigenization of parts and components used in platforms produced by DPSUs. A specific web platform, SRIJAN, has also been established to allow DPSUs and military forces to upload previously imported commodities for indigenization by domestic firms.

Performance of the Defence Industry:

Following many changes, the defense industry has achieved some progress. The most evident measure of progress is the near-constant increase in output turnover, which reached INR 1087 billion (US$13.5 billion) in 2022-23 (refer to Table 1). This, in turn, demonstrates the Indian industry's developing ability to build and provide a wide range of defensive equipment. Buoyed by the domestic industry's expanding competence, the MoD is progressively giving difficult contracts to the industry, both private and public.

In 2023, the MoD signed contracts with the domestic industry for medium power radar and an integrated electronic warfare system (Bharat Electronics), HTT-40 basic trainer aircraft and Dornier-228 aircraft (Hindustan Aeronautics Limited), cadre training ships (L&T), improved Akash Weapon System (Bharat Dynamics Limited), offshore patrol and missile vessels (Goa Shipyard Limited and Garden Reach Shipbuilders and Engineers), and fleet support vessels (Hindustan Shipyard) and upgraded super rapid gun mount (Bharat Heavy Electrical Limited)

The government's reforms have resulted in a noticeable increase in defense exports, which reached a record high of INR 210.83 billion (about US$2.63 billion) in 2023-24 (see Table 4). Defence exports totaled INR 883.19 billion (about US$11 billion) in the post-reform decade (2014-15 to 2023-24), a 21-fold increase over the previous pre-reform decade (2004-05 to 2013-14). Encouraged by its performance, the government has set an ambitious yearly export target of INR 500 billion (about US$6.0 billion) for 2028-29.

Table 4:

India's Defence Exports

Year	Export Authorisations to Private Companies (INR billion)	Export by DPSU (INR billion)	SCOMET Issued by DGFT (INR billion)	Contract Value (INR billion)	Total Export (INR billion)
2016-17	1.94	13.28	0.00	0.00	15.22
2017-18	31.63	15.19	0.00	0.00	46.82
2018-19	98.13	9.33	0.00	0.00	107.46
2019-20	80.08	9.05	2.03	0.00	91.16
2020-21	72.71	9.85	1.79	0.00	84.35
2021-22	59.65	3.86	0.07	64.57	128.15
2022-23	90.51	3.86	3.51	61.30	159.18
2023-24	131.40	1.09	20.90	57.65	211.05

Source: Department of Defence Production

India today exports weaponry, ammunition, and associated commodities to more than 85 nations, with 100 Indian companies involved in worldwide sales. Some of the most significant exports include "Dornier-228, 155 mm Advanced Towed Artillery Guns, Brahmos Missiles, Akash Missile System, Radars, Simulators,

Mine Protected Vehicles, Armoured Vehicles, PINAKA Rockets & Launchers, Ammunitions, Thermal Imagers, Body Armours, besides Systems, Line Replaceable Units and Parts & components of Avionics and Small Arms."

Notably, the private sector drives the majority of exports, while the DPSUs, which are the backbone of Indian defence industry, have made minimal contribution. However, the majority of private sector exports consist of parts, components, assemblies, and sub-assemblies, with only a few Indian companies exporting significant systems. Among the primary commodities exported by the private sector, Bharat Forge's shipment of 155mm artillery weapons (value $155 million) is remarkable.

Encouraged by the domestic sector's achievements and eager to promote it further, the government has taken two critical moves that are expected to increase domestic industry involvement in the future years. In an effort to acquire more from domestic industry, the government has continuously allocated a larger portion of its capital acquisition budget to procurement from domestic industry. In 2023-24, the proportion was increased to 75 percent, up from 58 percent in 2021-22, reflecting the government's growing trust in the domestic industry's ability to meet the armed forces' needs.

At the same time, the government is eager to bolster its confidence in local competence. This is evidenced by the Indian industry's decision to execute a high-value purchase proposal. In 2022-23, the MoD issued the acceptance of need (AoN)—the official clearance to begin the formal procurement—to proposals totaling INR 2710 billion (about US$32.5 billion), of which 99 percent is designated for procurement from domestic industry.

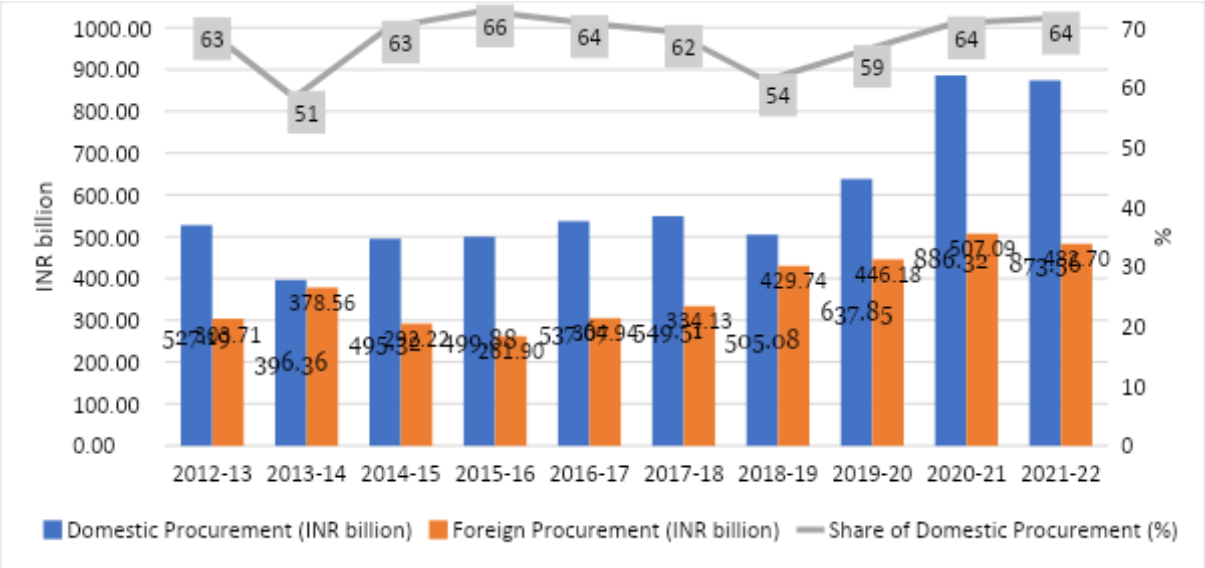
In 2023, the value of AoN was INR 3500 billion (about US$42 billion), with the majority of it being made in India.[28] Some of the important equipment for which the government has granted AoN include light combat helicopters, light combat aircraft MK 1A, medium-range anti-ship missiles, and a towed gun system. When these proposals, along with the 500 goods identified in the positive indigenization lists, are transformed into contracts and then into real production by the industry, the domestic industry's volume and share of procurement are expected to expand significantly. The Ministry of Defence projects that the value of domestic defense production will reach INR 3 trillion (about US$36 billion) by 2028–29.

Challenges of the Defence Industry:

Although the Indian defence sector is currently on much better footing, it still confronts a number of obstacles. The primary problem is raising production to a level that matches India's purchase requirements. Despite the government's efforts and an ambitious output target of US$26 billion by 2025, manufacturing has not increased sufficiently to meet the military forces' annual procurement requirements. As Figure 1 illustrates, the domestic share of the armed services' capital purchase has barely increased since 2014-15, when the Make in India initiative was introduced. India's modest development in defence production, along with an ever-increasing procurement budget, has left the country reliant on external sources for essential defence hardware requirements.

Despite a considerable growth in overseas arms sales, the industry is still far from meeting the government's export targets. The DPSUs have been slow to achieve expectations, posing the most significant challenge to the government's export target. Some recent attempts to export important systems have not been successful. For example, Hindustan Aeronautics Limited, India's largest military business, was unable to win an international competition for its light combat aircraft Tejas fighter in Malaysia, which instead chose a Korean option.Previously, Garden Reach Shipbuilders and Engineers lost a major tender in the Philippines, demonstrating the problems faced by DPSUs in armament exports.

Figure 1: Capital Acquisition by Armed Forces (Domestic and Foreign)



Source: Extrapolated from Standing Committee on Defence, Demands for Grants 2023-24

Second, despite its vast manufacturing and R&D base, the Indian military sector lacks the technological depths required to design/manufacture key systems as well as critical parts, components, and raw materials, which are finally imported. The lack of technological depth is also one of the reasons why the Indian government continues to license-manufacture many critical systems. Notably, licensing manufacture has an overwhelming share of 58 percent in India's defense purchases, demonstrating the degree of India's external dependency.

Third, while the Modi government has pledged numerous reforms to boost local manufacturing, many of them have yet to be fully implemented. This has resulted in an excessive delay between reform statements and their translation into actual contracts, manufacturing, and delivery. Given India's bureaucratic system, overcoming implementation delays would be a significant problem for the foreseeable future.

Conclusion:

The Modi government's reform policies under the Make in India program and the Atmanirbhar Bharat Abhiyan have begun to have a good influence on the Indian defense sector, as seen by increased production and exports. Furthermore, with the government reserving a huge bank of projects for production in India, the impact is projected to grow in the future years.

Although the Indian defence sector's reform-driven performance is encouraging, several difficulties must be overcome before the industry can reach greater self-sufficiency. To avoid direct imports, defence manufacturing must be increased to equal or exceed India's expanding procurement. The industry's R&D capacity needs to be improved in order to further indigenization and avoid direct and indirect imports. There is also a need to speed up the defense procurement decision-making process so that the industry can manufacture and supply armaments as quickly as possible.

Reference:

1) Ministry of Defence, "Draft Defence Production & Export Promotion Policy (DPEPP) 2020,"

2) The seven new DPSUs are: Munitions India Ltd (MIL), Armoured Vehicles Ltd (AVNL), Advanced Weapons and Equipment India Ltd (AWEIL), Troop Comforts Ltd (TCL), Yantra India Ltd (YIL), India Optel Ltd (IOL) and Gliders India Ltd (GIL).

3) For an analysis of India's naval shipbuilding, see Laxman Kumar Behera and S.N. Misra, "India's Naval Shipbuilding Industry: Key Gaps and Policy Options," Defence Studies, Vol. 12, No. 3, 2012, pp. 434-451.

4) BrahMos Aerospace, "Annual Return for the year 2023".

7) Ministry of Defence, "Dashboard"

8) Press Information Bureau, "Defence Industrial Corridor," April 03, 2023

9) Press Information Bureau, "Another major boost to Atmanirbharta in defence: Ministry of Defence signs five major capital acquisition contracts worth Rs 39,125.39 crore," March 01, 2024

10) Standing Committee on Defence, Demands for Grants 2023-24, 35th Report, p. 45.

11) Pieter D. Wezeman et al., "Trends in International Arms Transfers, 2023," SIPRI Fact Sheet, March 2024

12) Press Information Bureau, "Cabinet approves creation of the post of Chief of Defence Staff in the rank of four stars General," December 24, 2019

13) Press Information Bureau, "Ministry of Defence identifies 18 major platforms for industry led design and development," March 11, 2022

14) Ministry of Defence, Defence Acquisition Procedure 2020.

15) Laxman Kumar Behera, "Indian Defence Industry: Issues of Self Reliance," IDSA Monograph Series No 21, July 2013, pp. 73-78

16) Lok Sabha, "FDI in Defence Sector," Unstarred Question No. 1228, Answered on February 09, 2024

17) Press information Bureau, "Ministry of Defence- Year End Review 2023," December 22, 2023