# DEFENCE MANUFACTURING

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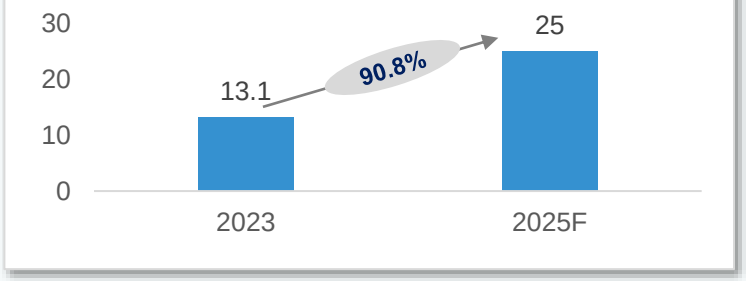
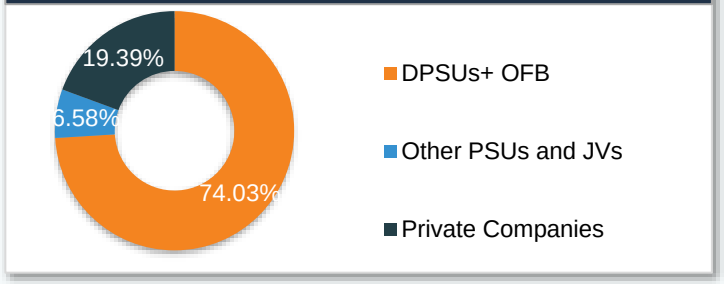
# Executive summary

| Indian defence production target in 2025 | % share of Defence Public Sector Undertaking and Ordnance Factory Board in FY23 | % share of private sector to the total production value in FY23 | Indian defence export target in 2025 | Foreign direct investment equity inflow in the defence industry (from April 2000 - December 2023) |
|---|---|---|---|---|
| ~US$ 25.00 billion | 74.03% | 19.39% | ~US$ 5.00 billion | US$ 16.38 million |

**Defence Production in India (US$ billion)**




**Defence Production in India by Sector (US$ billion) in FY23**




- The Indian Defence ecosystem is a confluence between the Government and the defence manufacturing industry.
- Ministry of Defence has set a target of achieving a turnover of US$ 25 million in aerospace and defence manufacturing by 2025, which includes US$ 5 billion in exports.
- The government has set a target of achieving defence manufacturing worth Rs. 1,75,000 crore (US$ 21.14 billion), including defence exports of Rs. 35,000 crore (US$ 4.22 billion) by 2024-25.
- The Interim Budget for 2024-25 envisaged an outlay of Rs. 6,21,540.85 crore (US$ 74.8 billion), which is 13.04 % of the total budget and represents an enhancement of 4.72% over the Budget of 2023-24. This includes an amount of Rs. 1,41,205 crore (US$ 17.0 billion) for Defence Pensions.
- Over the next 5-7 years, the Government of India plans to spend US$ 130 billion for fleet modernization across all armed services.

***Notes:*** *F - Forecast;*
***Source:*** *Department for Promotion of Industry and Internal Trade, Press Information Bureau, Make in India, Interim Budget 2024-25*

# Advantage India

# Advantage India

## 1. Competitive advantage

- India's defence budget of US$ 73.8 billion ranked third highest globally in 2023.
- The Government of India opened the defence industry for private sector participation to provide impetus to indigenous manufacturing.
- In the Interim Budget 2024-25, US$ 2.9 billion (Rs. 23,855 crore) was allocated to DRDO, while a corpus of US$ 12.0 billion (Rs. 1 lakh crore) was earmarked for Deep Tech, offering long-term loans to tech-savvy companies to foster innovation in defence technologies within India.

## 2. Growing Demand

- Demand growth is likely to accelerate with rising concerns of national security.
- Till April 2023, a total of 606 industrial licenses were issued to 369 companies operating in the defence sector.
- Defence exports rose 240% over five years in FY23, to US$ 1.9 billion (Rs. 15,918.16 crore).
- India now exports to over 85 countries due to collaborative efforts.
- The Ministry of Defence has set a target of achieving defence exports worth US$ 2.4 billion (Rs. 20,000 crore) in FY24.


## 4. Government support investment

- With Government initiatives, the expenditure on defence procurement from foreign sources which used to be 46% of the overall expenditure has reduced to 36.7% in the last four years i.e. 2018-19 to 2021-22.
- In October 2023, the Department of Military Affairs and Ministry of Defence released the fifth indigenization list comprising 98 products, aimed at promoting 'Aatmanirbharta' in the defence sector, emphasizing domestic manufacturing over imports. This list supplements the previous four lists, totaling 411 military items.
- SRIJAN portal launched to promote indigenization. More than 34,000 items are available for public view and 10,000 items have been indigenized till January 2024.

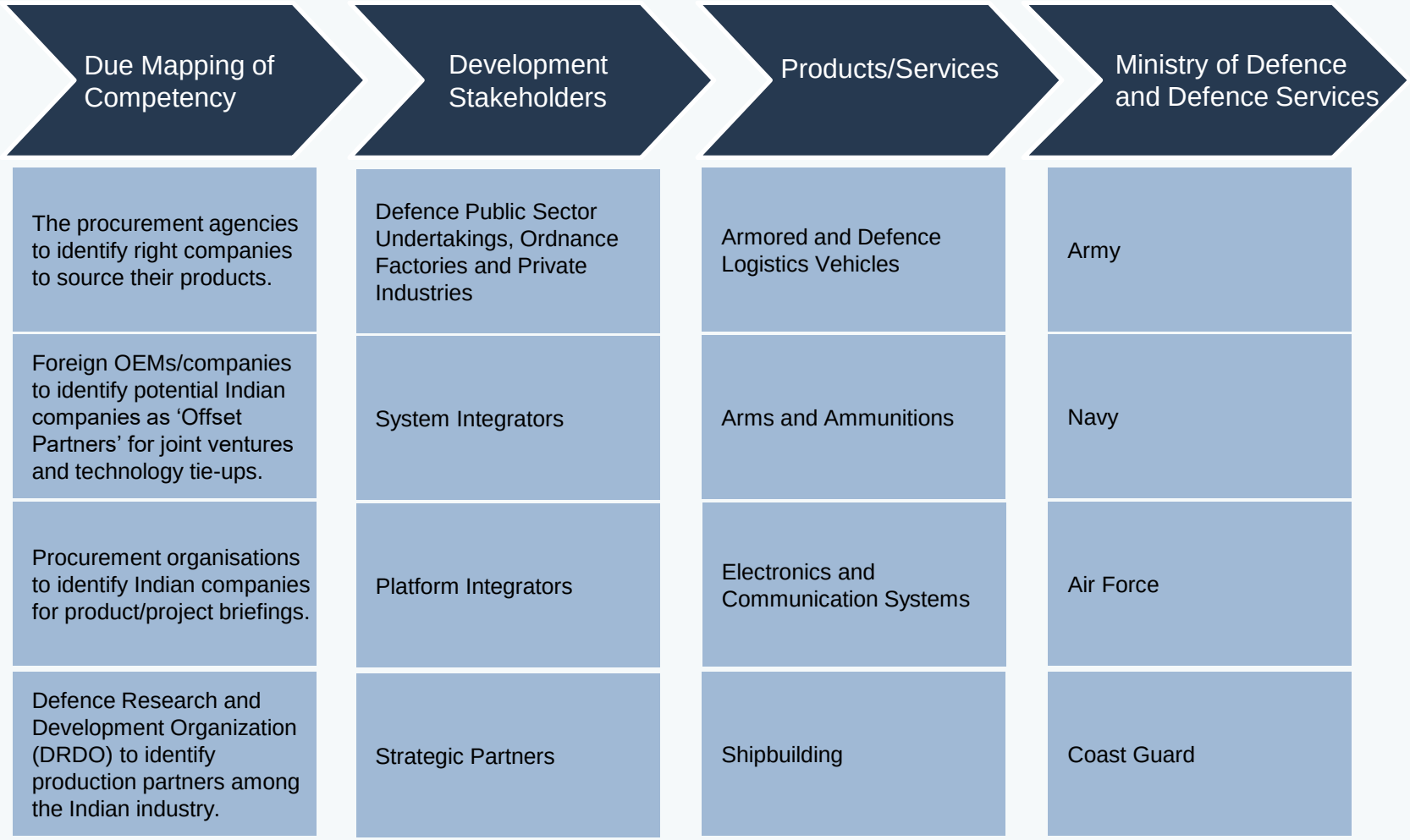
## 3. Opportunities

- Government has established two Defence Industrial Corridors in Uttar Pradesh and Tamil Nadu.
- India has around 194 defence tech startups building innovative tech solutions to empower and support the country's defence efforts.

***Source:*** *Interim Budget 2024-25*, *Make in India, Srijan defence*

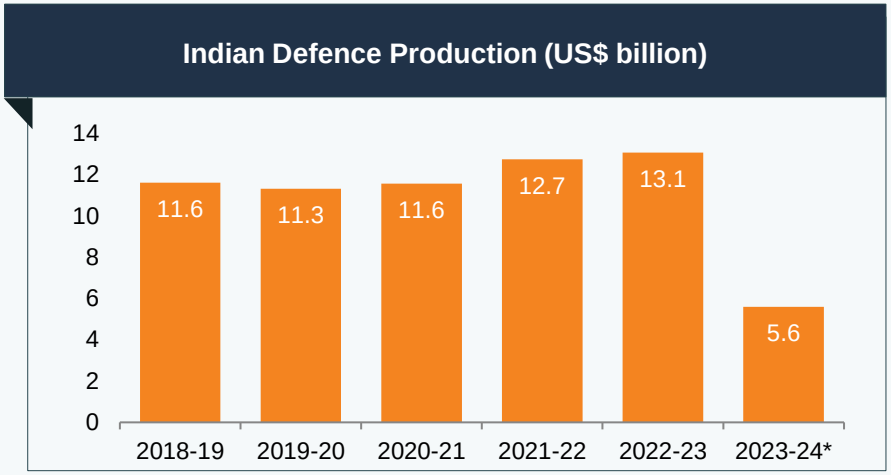
# Market Overview

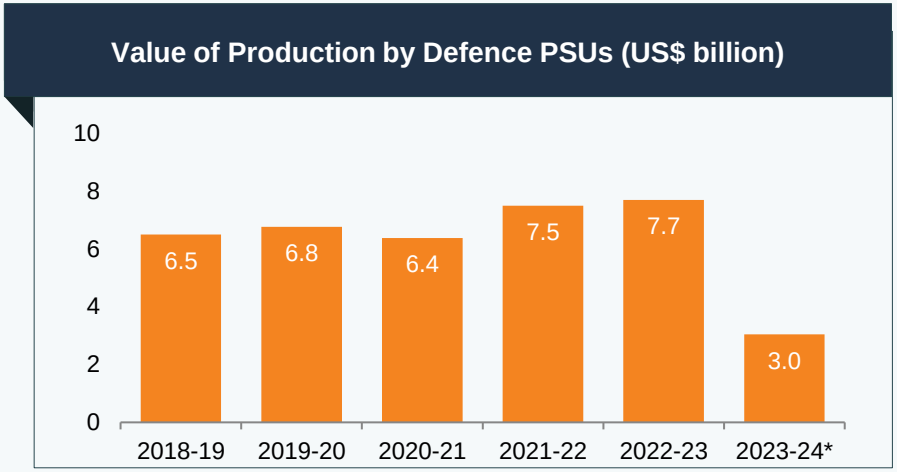
# Defence manufacturing landscape




***Note:*** *(T) Targeted ; Public Sector Undertakings (PSUs)*
***Source:*** *Indian Defence Production & Exports. (IANS Infographics), Ministry of Defence, Government of India*

# Indian Defence Production Value

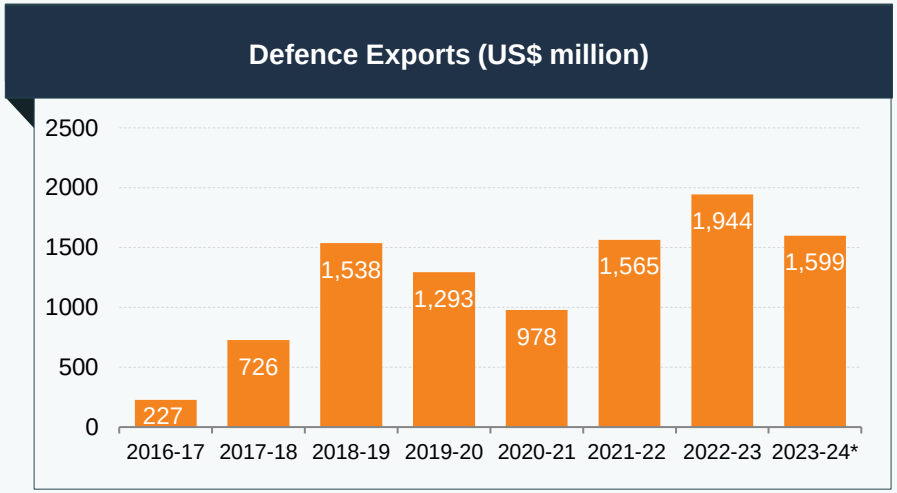


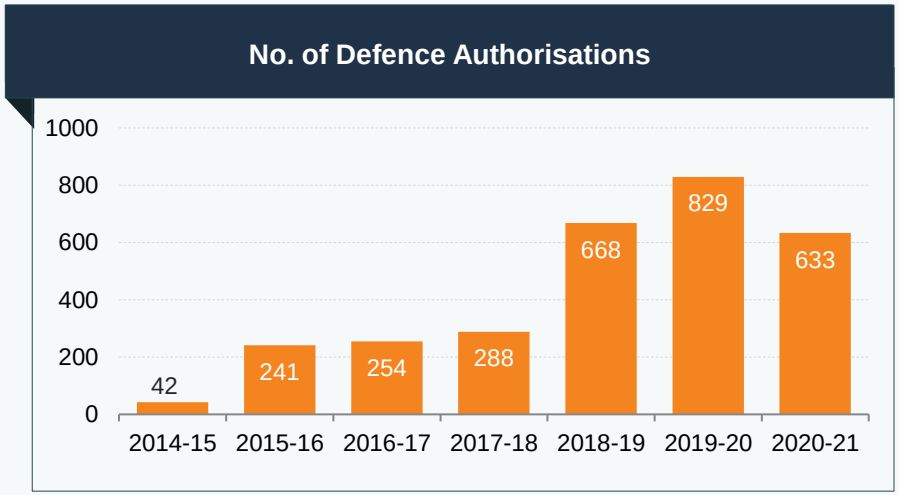




- The value of defence production in the country crossed Rs. 1 lakh crore (US$ 12 billion) for the first time on the back of key reforms to spur growth in the sector that holds vast potential. The figure stood at Rs.1,08,684 crore (US$ 13.1 billion) in FY23 compared to Rs. 94,845 crore (US$ 11.4 billion) in FY22. The value of defence production in FY24* stood at Rs. 46,175 crore (US$ 5.6 billion) while the defence production by PSU's stood at Rs. 25,271 crore (US$ 3.04 billion).
- The Indian defence sector is one of the world's largest and most profitable industries, with a 10-year pipeline of over US$ 223 billion in aerospace and defence capital expenditure and a projected medium-term investment of US$ 130 billion.
- The Draft Defence Production and Export Promotion Policy (DPEPP) was published in 2020, with the ambitious goal of increasing defence turnover from approximately Rs. 80,000 crore (US$ 10 billion) in 2019-20 to approximately Rs. 1,75,000 crore (US$ 21.87 billion) by 2025, including the export of Rs. 35,000 crore (US$ 4.37 billion).
- Among the large defence programs expected to be shifted to "Buy Global – Manufacture in India" are 114 multirole fighter aircraft (MRFA), with a gradual increase in domestic production.
- The FDI maximum in defence manufacturing under the automatic route has been raised from 49% to 74% (for new investments requiring an industrial license), allowing foreign firms to establish manufacturing units with a greater degree of ownership and control.

***Note:*** **Until November 17, 2023*
***Source:*** *Ministry of Defence, Government of India, News Articles*

# Defence exports



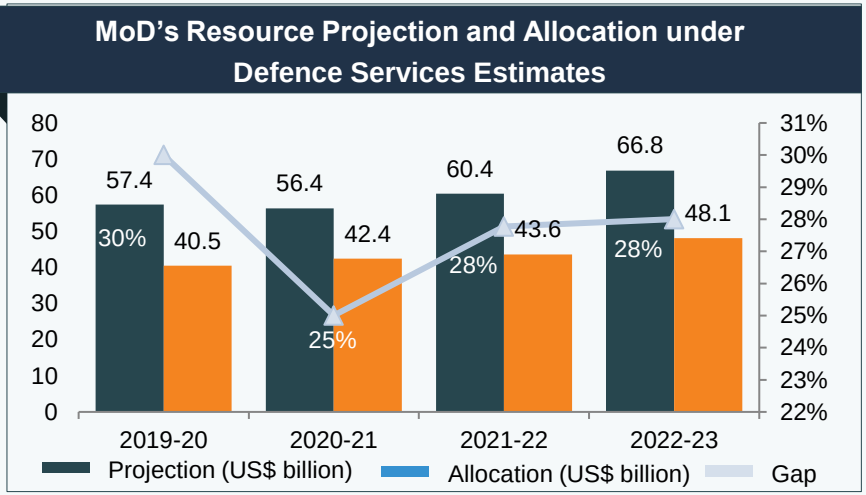



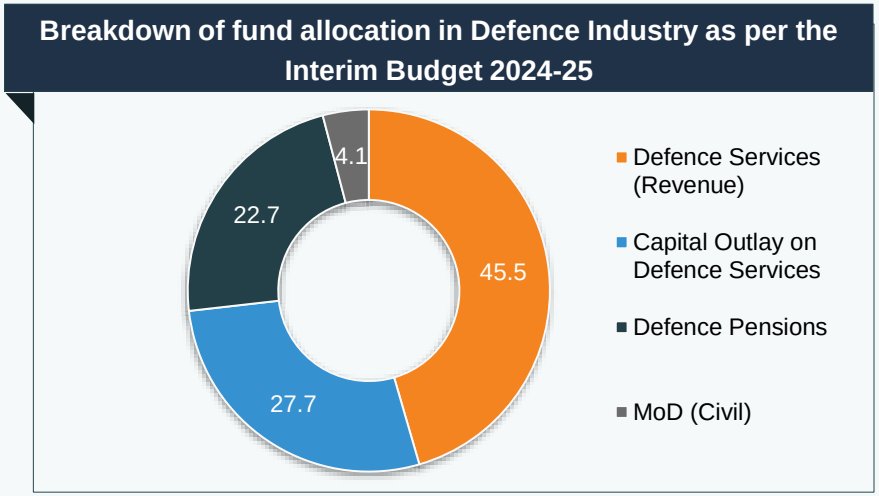

- Defence exports rose 240% over the five years in FY23, to US$ 1.9 billion (Rs. 15,918.16 crore).
- The Central government aims to take India's defence exports up to US$ 5 billion by 2024-25.
- Defence Production and Export Promotion Policy 2020 (DPEPP): The present 'Defence Production & Export Promotion Policy (DPEPP) 2020' is positioned as the Ministry of Defence's overarching guiding document to provide a focused, structured and significant thrust to defence production capabilities of the country for self-reliance and exports. The policy has the following goals:
  - To achieve a turnover of Rs. 1,75,000 crore (US$ 25 billion) including export of Rs. 35,000 crore (US$ 5 billion) in Aerospace and Defence goods and services by 2025.
  - To develop a dynamic, robust and competitive Defence industry, including the Aerospace and Naval Shipbuilding industry to cater to the needs of Armed forces with quality products.
  - To reduce dependence on imports and take forward "Make in India" initiatives through domestic design and development.
  - To promote the export of defence products and become part of the global defence value chains.
  - To create an environment that encourages R&D, rewards innovation, creates Indian IP ownership and promotes a robust and self-reliant defence industry.

***Note:*** **As of February 16, 2024*
***Source:*** *Department of Defence Production, Ministry of Defence, Make in India*

# Recent Trends and Strategies

# Capital Allocation

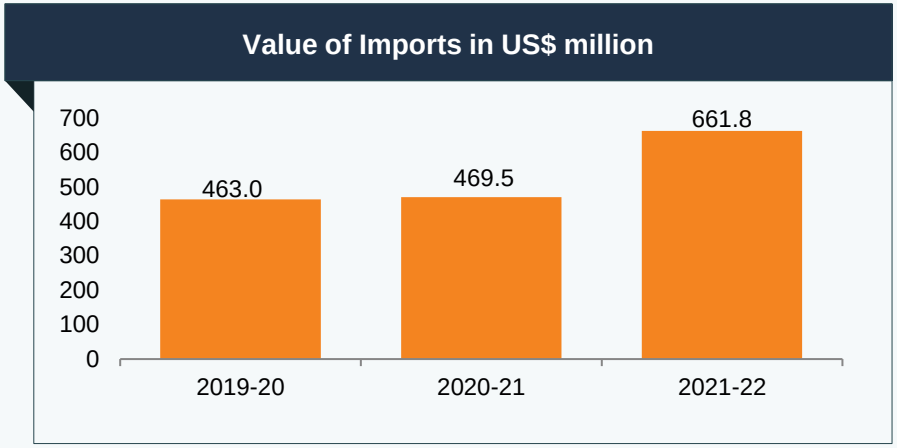


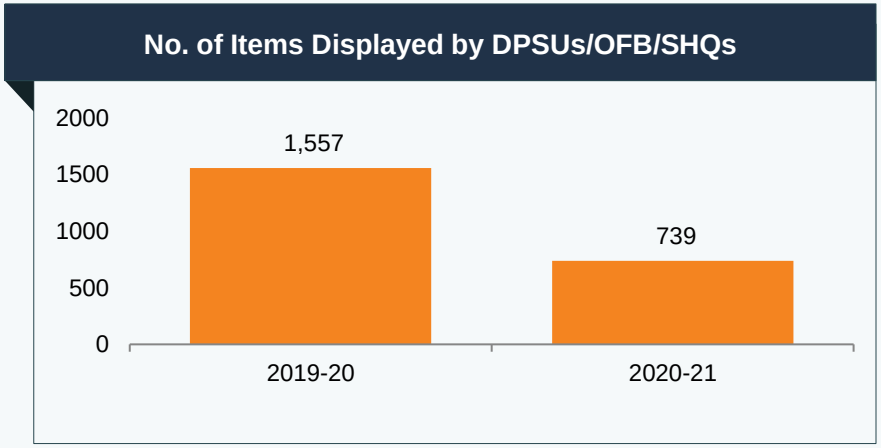




- In the Interim Budget 2024-25:
  - In 2024-25, the Ministry of Defence (MoD) was allocated a total Budget of US$ 74.8 billion (Rs. 6.21 lakh crore), which is 13.04% of the total budget.
  - Of this, US$ 20.7 billion (Rs. 1.72 lakh crore) was allocated towards capital expenditure, including the purchase of new weapons, aircraft, warships, and other military equipment
  - An outlay of US$ 782.3 million (Rs. 6,500 crore) was announced towards the capital expenditures of the Border Roads Organization (BRO).
- Aero India 2023 held on February 15, 2023, showcased the 'New Defence Sector' of 'New India' to the world. The Bandhan ceremony also witnessed the forging of 266 partnerships including 201 MoUs, 53 major announcements, nine product launches and three Transfers of Technology, worth around US$ 9.72 billion (Rs. 80,000 crore).

***Source:*** *News Articles, Press Information Bureau, Interim Budget 2024-25*

# Defence Import




- Indian government endeavors to boost indigenous defence manufacturing.
- India ranks fourth among 12 Indo-Pacific nations in self-reliant arms production capabilities, according to a study released by the Stockholm International Peace Research Institute (SIPRI).
- Hindustan Aeronautics Ltd, Indian Ordnance Factories, Bharat Electronics, Mazagaon Docks and Cochin Shipyard are among the major Indian arms servicing companies. Ashok Leyland, one of the largest suppliers of trucks to the Indian Army, is the only company ranked in the top 50 in the Indo-Pacific.
- To support the domestic defence industry the government aims to ensure transparency, predictability, and ease of doing business by creating a robust eco-system and supportive government policies. Towards this end the government has taken steps to bring about de-licensing, de-regulation, export promotion and foreign investment liberalization. Ministry of Defence has also notified five 'Positive Indigenization lists' comprising of 509 defence equipment to be manufactured locally.
- Additionally, to promote export and liberalize foreign investments FDI in Defence Sector has been enhanced up to 74% through the Automatic Route and 100% by Government Route.
- The government has also announced two dedicated Defence Industrial Corridors in the States of Tamil Nadu and Uttar Pradesh to act as clusters of defence manufacturing that leverage existing infrastructure, and human capital.

***Source:*** *Department of Defence Production, Ministry of Defence, Ministry of Defence, Government of India*

# Notable trends in the defence manufacturing sector…(1/2)

## 1. Focusing on Defence Startups

- According to government data, India has around 194 defence start-ups building innovative tech solutions. The government has set a target of Rs. 1.75 lakh crore (US$ 21.3 billion) of defence production by 2025, which includes exports of Rs. 35,000 crore (US$ 4.3 billion).
- Indian and American startups will now be able to co-develop and co-produce advanced technologies, including in areas of space artificial intelligence, under the India-United States Defence Acceleration Ecosystem (INDUS-X).

## 2. Presence of Private Sector in Defence Manufacturing

- The Indian private sector has grown since opening of the defence sector and evolved from producing components and sub-systems, to developing complete equipment and systems, system of systems and platform level solutions.
- This is clearly visible from the quantum (more than 90%) of defence exports by private defence companies.


## 3. Developing AI-based Capabilities

- The Radio Trunk System (RTS), Radio Local System, Artillery Combat Command and Control System (ACCCS) also called as 'SHAKTI', wireless message transfer unit (WMTU), Advanced Tactical Communication Systems for the Army such as Army Radio Engineered Network (AREN), Army Static Switched Communication Network (ASCON), Troposcatter Communication Systems, SATCOM, Battlefield Management System (BMS) etc. are some of the CAIR's products which have significantly improved military communication in the border areas.

## 4. Leveraging IT for Efficient Defence Production Operations

- SRIJAN portal launched to promote indigenization. More than 34,000 items are available for public view and 10,000 items have been indigenized till January 2024.
- Development of an indigenization portal for all defence PSUs and ordnance factories can ensure seamless search experience for stakeholders for processes such as online registration of vendors expressing interest for indigenising a product.

## 5. Local designing and development of products

- Indigenous production of defence equipments is at the core of 'Make in India' programme.
- Key defence manufacturing companies are currently focusing on designing and developing various indigenous weapons and essential products to boost domestic manufacturing capabilities and align with Hon'ble Prime Minister's vision of Aatmnirbhar Bharat.

***Source:*** *Forbes, News Articles*

# Notable trends in the defence manufacturing sector…(2/2)

- Under the 'Aatmanirbhar Bharat' campaign, the Indian Aerospace and Defence sector has been identified as one of the key focus areas. There have been various policy changes signaling the end of an era of import dependence and aim to promote India as the most preferred global manufacturing destination for foreign OEMs/Tier-1 vendors.
- The government has set a target of achieving defence manufacturing worth Rs. 1,75,000 crore (US$ 21.14 billion), including defence exports of Rs. 35,000 crore (US$ 4.22 billion) by 2024-25.
- To achieve the desired growth, the two main cornerstones will be indigenization and self-reliance in defence manufacturing.
- There have been substantial changes introduced in the defence policy framework in 2020. Raising the levels of Indigenous Content to a minimum of 50% across various categories, introducing new categories like 'Buy (Global – Manufacture in India)' under Defence Acquisition Procedure, 2020 (DAP 2020) thus increase the government's focus on indigenization, transfer of technology and encouraging private sector participation to be in line with the industry needs.
- *Thrust on Modernization & Infrastructure Development Sustained in Interim Budget 2024:* In the Interim Budget 2024-25, the Capital Investment Outlay has been increased by 11.1% to Rs. 11.1 lakh crore (US$ 133 billion), accounting for 3.4% of GDP. This also imply a 3x jump in capex outlay in the past 4 years.
- As per the Interim Budget 2024-25, the Capital Allocations pertaining to modernization and infrastructure development of the Defence Services increased to Rs. 1,72,000 crore (US$ 20.7 billion) , + 5.8% over 2023-24. This increase is a reflection of the Government's commitment towards sustainable augmentation in the area of modernization & infrastructure development of the Defence Services.
- *Recognizing the crucial role of Research, Innovation and Technological development towards capacity building of the Armed Forces as well as fueling India's Mission of Aatmanirbharta:*
  - In the Interim Budget 2024-25, the allocation for Defence Research and Development Organization (DRDO) was increased to US$ 2.9 billion (Rs. 23,855 crore). This boost aims to strengthen DRDO's capability in developing new technologies, with a focus on fundamental research and supporting private entities through Development-cum-production partnerships.
  - An allocation of US$ 7.2 million (Rs. 60 crore) was announced for the Technology Development Fund (TDF) scheme, specifically designed to support new startups, MSMEs, and academia engaged in defence-related innovation. This initiative seeks to attract young talent interested in niche technology development, fostering collaboration with DRDO.
  - Additionally, the Interim Budget 2024-25 announced a corpus of US$ 12 billion (Rs. 1 lakh crore) for Deep Tech, offering long-term loans to tech-savvy individuals and companies. This initiative is expected to accelerate innovation in the defence sector, promoting the development of cutting-edge technologies.
- The two defence corridors in Uttar Pradesh and Tamil Nadu have signed 158 memorandums of understanding (MoUs) with industries representing investments worth Rs. 23,933 crore (US$ 2.92 billion).
- The Central government aims to take India's defence exports up to US$ 5 billion by 2024-25.

***Source:*** *Press Information Bureau, Interim Budget 2024-25, News Articles*

# Strategies adopted

## 2. INNOVATION IN DEFENCE MANUFACTURING

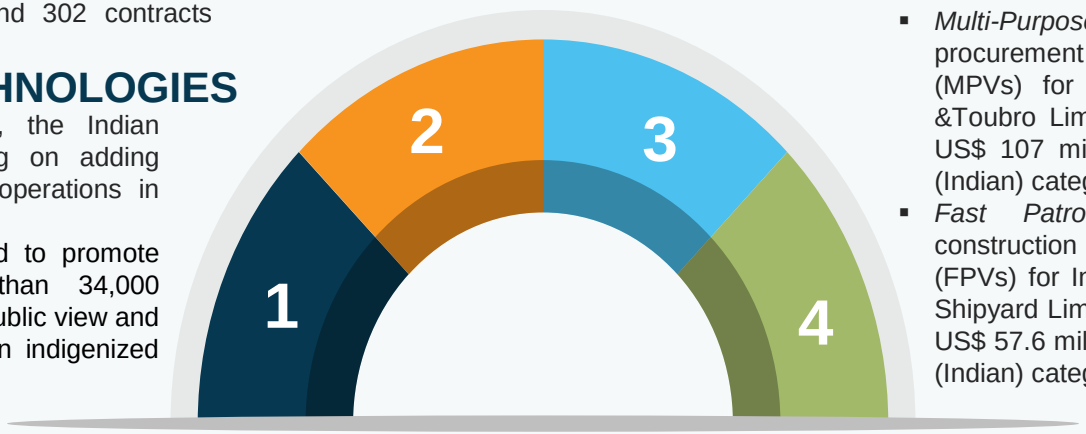
- The Interim budget 2024-25 earmarked US$ 7.2 million (Rs. 60 crore) for the Technology Development Fund (TDF) scheme, specifically designed to support new startups, MSMEs, and academia engaged in defence-related innovation aiming to attract young talent interested in niche technology development, fostering collaboration with DRDO.
- Additionally, a corpus of US$ 12 billion (Rs. 1 lakh crore) for Deep Tech, offering long-term loans to tech-savvy individuals and companies was announced in the Interim Budget 2024-25. This initiative is expected to accelerate innovation in the defence sector, promoting the development of cutting-edge technologies.
- As of December 4, 2023, 433 startups/MSMEs/individual innovators have been engaged and 302 contracts have been signed.

## 1. DIGITAL TECHNOLOGIES

- To increase efficiency, the Indian government is focusing on adding digital technologies in operations in the defence sector.
- SRIJAN portal launched to promote indigenization. More than 34,000 items are available for public view and 10,000 items have been indigenized till January 2024.

## 3. LEVERAGING STRATEGIC PARTNERSHIPS TO BUILD CAPABILITIES

- The Bandhan ceremony of 14th Aero India in Bengaluru on February 15, 2023, witnessed the forging of 266 partnerships including 201 MoUs, 53 major announcements, nine product launches and three Transfers of Technology, worth around Rs. 80,000 crore (US$ 10 billion).
- The 12th and largest-ever defence exhibition - DefExpo 2022 - marked the emergence of India's defence industry as a sunrise sector for investment on the global scale, in line with the theme 'Path to Pride'. Organized exclusively for Indian companies, the five-day event witnessed unparalleled participation of over 1,340 exhibitors, businesses, investors, start-ups, MSMEs, Armed Forces and delegates from several countries, with engagements spread over four venues.



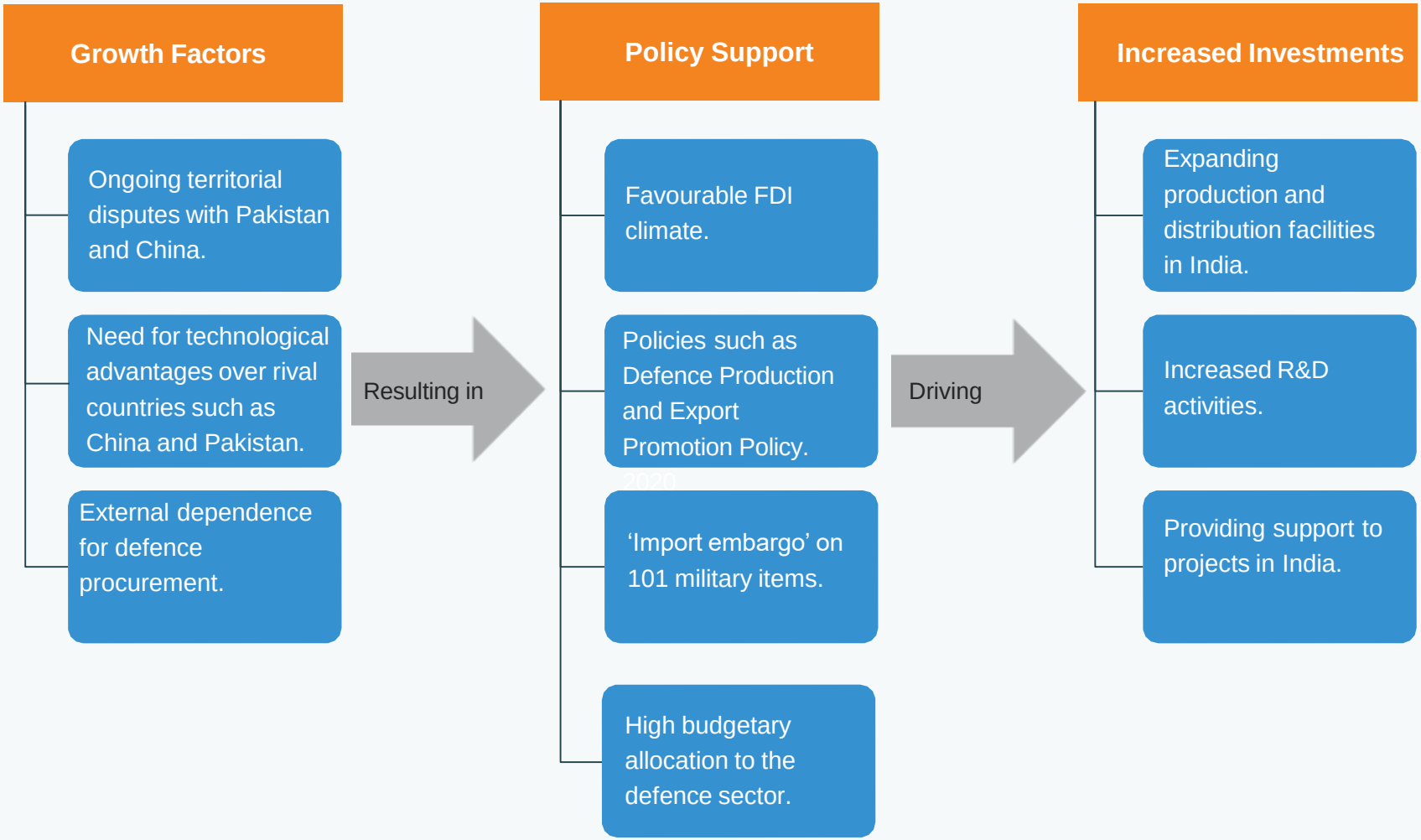

## 4. PROCUREMENT OF MILITARY HARDWARE & SOFTWARE

- The Ministry of Defence signed a contract with Advanced Weapon Equipment India Ltd. for the production and supply of 463 indigenous 12.7 mm Stabilized Remote Control Guns (SRCG) to the Indian Navy and Indian Coast Guard. The contract, valued at US$ 210 million (Rs. 1752.13 crores), boasts an Indigenous Content (IC) exceeding 85%.
- The Indian government is procuring military hardware and software to improve firepower in the Indian Navy and enhance capabilities to perform against fast maneuvering targets such as missiles and 'Fast Attack Crafts'.
- *BrahMos:* A contract was signed for procurement of 35 combat and three Practice BrahMos missiles for two P-15B ships from M/s BrahMos Aerospace Pvt. Ltd., India for an amount of US$ 209 million (Rs. 1,723 crore).
- *Multi-Purpose Vessels:* Contract for procurement of two Multi-Purpose Vessels (MPVs) for Indian Navy from M/s Larsen &Toubro Limited, Mumbai for a total cost of US$ 107 million (Rs. 887 crore) under Buy (Indian) category was signed in March 2022.
- *Fast Patrol Vessels*: A contract for construction of eight Fast Patrol vessels (FPVs) for Indian Coast Guard with M/s Goa Shipyard Limited (GSL), Goa at a total cost of US$ 57.6 million (Rs. 473.47 crore) under Buy (Indian) category was signed in March.

***Source:*** *Press Information Bureau*

# Growth Drivers

# Growth drivers for defence manufacturing in India




***Notes:**, R&D - Research and Development*

***Source:** Live Mint, DD News, Hindustan Times, Defence News, Financial Express, Union Budget 2021-22*

# Strong demand and policy support driving investments…(1/3)

1

## Growth Factors

- Indian government endeavors to boost indigenous defence manufacturing. India ranks fourth among 12 Indo-Pacific nations in self-reliant arms production capabilities, according to a study released by the Stockholm International Peace Research Institute (SIPRI).
- As of February 2023, Ministry of Defence approved the proposal for indigenous manufacture of 41 sets of Modular Bridges for the Indian Army, designed and developed by DRDO and to be produced by Larsen & Toubro at an estimated cost of Rs. 2,585 crore (US$ 314 million).

2

## “Import Embargo” on Military Items

- Defence ministry plans to put 4666 defence items (replacement units, sub-systems, spares, and components) under import embargo between December 2023 and December 2029 to make India a self-reliant power and strengthen the indigenous capacity of the country.
- India has published five Positive Indigenization Lists focused on import substitution of 509 defence items including complex systems, sensors, weapons and ammunition whose manufacturing will now be done indigenously.

3

## Capital Procurement

- In the Interim Budget 2024-25, Rs 1.72 lakh crore (US$ 12.2 billion) ~27.67% of total defence budget was allocated for capital acquisition, 9.4% higher than revised allocation in 2023-24..
- In order to support domestic defence manufacturing, the Indian armed forces are projected to spend ~US$ 130 billion in capital procurement in the next five years (2021-26).

***Source:*** *Press Information Bureau, Make in India, News Articles*

# Strong demand and policy support driving investments…(2/3)

## 4

## Self Reliance in Defence Sector

- The Government has taken several policy initiatives in the past few years and brought in reforms to encourage indigenous design, development and manufacture of defence equipment, thereby promoting self-reliance in defence manufacturing & technology in the country.
- These initiatives, inter-alia, include according priority to procurement of capital items of Buy Indian (IDDM) category from domestic sources under Defence Acquisition Procedure (DAP)-2020; Notification of five 'Positive Indigenization Lists' of total 509 items of Services and three 'Positive Indigenization Lists' of total 4,666 items of Defence Public Sector Undertakings (DPSUs), for which there would be an embargo on the import beyond the timelines indicated against them; Simplification of Industrial licensing process with longer validity period; Liberalization of Foreign Direct Investment (FDI) policy allowing 74% FDI under automatic route; Simplification of Make Procedure; Launch of Mission DefSpace; Launch of Innovations for Defence Excellence (iDEX) scheme by involving Start-ups & Micro, Small and Medium Enterprises (MSMEs); Implementation of Public Procurement (Preference to Make in India) Order 2017; Launch of an indigenization portal namely SRIJAN to facilitate indigenization by Indian Industry including MSMEs; Reforms in Offset policy with thrust on attracting investment and Transfer of Technology for Defence manufacturing by assigning higher multipliers; and Establishment of two Defence Industrial Corridors, one each in Uttar Pradesh and Tamil Nadu; Earmarking of 25% of R&D Budget for Industry led R&D; Progressive increase in allocation of Defence Budget of military modernization for procurement from domestic sources, etc.
- A total of 606 industrial licenses were issued to 369 companies operating in the defence sector till April 2023.
- In order to promote indigenous design and manufacturing, funds have also been earmarked for procurement from indigenous sources. For FY24, funds have been earmarked in the ratio 67.75:32.25 between Domestic and Foreign procurement in the Capital Acquisition Budget of the Ministry of Defence (MoD). In addition, the MoD has also directed spending an amount of Rs. 1,500 crore (US$ 181.1 million) towards procurement from start-ups.

## 5

## FDI in Defence Manufacturing

- FDI in the defence sector is allowed up to 74% through automatic route (from earlier 49%) for companies seeking new industrial licenses. FDI beyond 74% and up to 100% will be permitted under the Government route.
- The cumulative FDI equality inflow in the Defence industry is US$ 16.38 million during the period April 2000-December 2023.
- In the Indian Defence Sector, investment opportunities are in the following areas:
  - Supply chain sourcing opportunity
  - Modernization of armed forces
  - Infrastructure development
  - Research and Development

***Source:*** *Press Information Bureau, Make in India*

# Strong demand and policy support driving investments…(3/3)

6

## Skill Development

- A regular MTech program in Defence Technology has been launched by DRDO and AICTE to impact necessary theoretical and experimental knowledge, skill and aptitude in various defence technology areas. The programme will motivate the aspiring engineers to start their career in defence technology and will help in achieving ‘Aatmanirbhar Bharat’.

7

## US Navy ship repair

- Providing a huge boost to ‘Make in India’ and adding a new dimension to the Indo-US strategic partnership, US Navy Ship Charles Drew visited L&T’s Shipyard at Kattupalli, Chennai in August for undertaking repairs and allied services. This was the first ever repair of a US Navy ship in India.

8

## iDEX Prime

- Innovations for Defence Excellence (iDEX) Prime and 6th Defence India Start-up Challenge (DISC 6) was launched during DefConnect 2.0 in New Delhi. The iDEX-Prime aims to support projects, requiring support beyond Rs. 1.5 crore (US$ 1,82,530) up to Rs. 10 crore (US$ 1.2 million) to help ever-growing start-ups in the defence sector. The DISC 6 with 38 Problem Statements was also launched.

9

## DefExpo

- The 12th and largest-ever defence exhibition - DefExpo 2022 - marked the emergence of India’s defence industry as a sunrise sector for investment on the global scale, in line with the theme ‘Path to Pride'. Organized exclusively for Indian companies, the five-day event witnessed unparalleled participation of over 1,340 exhibitors, businesses, investors, start-ups, MSMEs, Armed Forces and delegates from several countries, with engagements spread over four venues.

***Source:*** *Press Information Bureau, Make in India*

# Developments in defence manufacturing industry…(1/8)

1

## Thrust on Modernization & Infrastructure Development Sustained in Interim Budget 2024

- In the Interim Budget 2024-25, the Capital Investment Outlay has been increased by 11.1% to Rs. 11.1 lakh crore (US$ 133 billion). Accordingly, the Capital Allocations pertaining to modernization and infrastructure development of the Defence Services increased to Rs. 1,72,000 crore (US$ 20.7 billion) +5.8% over 2023-24. This increase is a reflection of the Government's commitment towards sustainable augmentation in the area of modernization & infrastructure development of the Defence Services.
- An outlay of US$ 782.3 million (Rs. 6,500 crore) was announced towards the capital expenditures of the Border Roads Organization (BRO), an increase of 30% from 2023-24 and 160% higher than the allocation in 2021-22. This will boost the Border infrastructure thereby creating strategically important assets like the Sela Tunnel, Nechipu Tunnel and Sela-Chhabrela Tunnel and will also enhance border connectivity.

2

## Major Milestones in Fighter Jets and Missiles

- DRDO developed supersonic missile assisted torpedo (SMART) system was successfully launched from Wheeler Island in Odisha. The system is a next generation missile-based standoff torpedo delivery system. It has been designed to enhance anti-submarine warfare capability far beyond the conventional range of the torpedo. The system will further enhance the strength of our Navy and promote self-reliance in defence, harnessing of expertise and capabilities.

3

## Agnipath

- The AGNIPATH scheme for recruitment of youth in the Armed Forces was launched in June, allowing patriotic youth (Agniveers) to don the sacred uniform and serve the country for a period of four years.The scheme has been designed to enable a youthful profile of the Armed Forces and bring about a transformational shift towards a more tech-savvy military.

***Source:*** *Press Information Bureau*

# Developments in defence manufacturing industry…(2/8)

4

## INS Vikrant – Red letter day for 'Aatmanirbhar Bharat'

- India's first indigenous aircraft carrier INS Vikrant was commissioned by the Prime Minister at Cochin Shipyard Limited in September 2022.The commissioning showcased the country's growing prowess of indigenous manufacturing and a major milestone in the path towards 'Aatmanirbhar Bharat'.
- With 76% indigenous content, the 262.5 m long and 61.6 m wide ship is equipped with state-of-the-art equipment/systems, designed for a crew of around 1,600 officers and sailors.

5

## Light Combat Helicopter 'Prachand'

- The LCH is the first indigenous Multi-Role Combat Helicopter which has potent ground attack and aerial combat capability.
- It possesses modern stealth characteristics, robust armour protection and formidable night attack capability.
- Onboard advanced navigation system, guns tailored for close combat and potent air to air missiles make the LCH especially suited for the modern battlefield. It is capable of operating from high altitude terrain and carrying out precision strike at high altitude targets.

6

## Missile Destroyers/Frigates

- Two frontline warships of the Indian Navy – 'Surat' and 'Udaygiri' were launched at Mazagon Docks Limited, Mumbai in May. 'Surat' is the fourth Stealth-Guided Missile Destroyer of P15B class, while 'Udaygiri' is the second Stealth Frigate of P17A class.
- Project 15B class of ships are the next-generation stealth guided-missile destroyers of the Indian Navy which are follow-on class of the weapon intensive P15A (Kolkata Class) Destroyers.
- P17A Frigates are warships that are follow-on class of the P17 (Shivalik Class) Frigates with improved stealth features, advanced weapons & sensors and platform management systems.
- Y-12705 (Mormugao), the second ship of Project 15B, was delivered to Indian Navy in November, while fifth Stealth Frigate 'Taragiri' of P17A was launched in September.
- Indian Navy received a fully indigenized fuze YDB-60 for underwater Rocket RGB 60 in March, 2023 manufactured for the first time by a private Indian industry.

***Source:*** *Press Information Bureau*

# Developments in defence manufacturing industry…(3/8)

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## 7

### C-295 transport aircraft manufacturing facility

- The Prime Minister laid the foundation stone of C-295 transport aircraft manufacturing facility - the country's first in the private sector - in Vadodara, Gujarat in October. The facility will manufacture C-295 aircraft for the Indian Air Force through collaboration between Tata Advanced Systems Limited and Airbus Defence and Space S.A., Spain.
- This is the first project of its kind in which a military aircraft will be manufactured in India by a private company. The total cost of the project is US$ 2.6 billion (Rs. 21,935 crore). The aircraft can be used for civilian purposes as well.
- 40 aircraft will be manufactured at the facility, while 16 aircraft will be delivered in flyaway condition, as per the contract signed between Ministry of Defence with M/s Airbus Defence and Space S.A.

## 8

### Bilateral Cooperation, Agreements, and Dialogues

- **India-US 2+2 Dialogue:** The dialogue reviewed bilateral cooperation across domains and discussed ways to further bolster the ties. The Raksha Mantri and External Affairs Minister Mr. S Jaishankar expressed India's desire to take the partnership towards co-development and co-production with US companies. He called for increased investments by US defence companies in India under the 'Make in India' programme.
- **India-Japan 2+2 Ministerial Dialogue**: The Raksha Mantri, along with the External Affairs Minister, participated in the 2nd India-Japan 2+2 Ministerial Dialogue in Tokyo in September 2022. A wide spectrum of bilateral and regional issues of mutual interest were discussed during the meeting. Extensive discussions were held on ways to enhance maritime cooperation, including maritime domain awareness. There was consensus on both sides that a strong India-Japan relationship is very important for a free, open, rule-based and inclusive Indo-Pacific based upon sovereignty and territorial integrity of nations.
- **India-France Annual Defence Dialogue:** Minister of Defence of India, Mr. Rajnath Singh, held the 4th India-France Annual Defence Dialogue with Minister of Armed Forces of the French Republic Mr Sebastien Lecornu in New Delhi in November. They discussed means to strengthen maritime cooperation and increase the scope and complexity of bilateral exercises.One of the key areas of discussion was defence industrial cooperation with a focus on 'Make in India'. Future collaborations and potential co-production opportunities were deliberated upon.
- **India-Maldives 4th Defence Corporation Dialogue:** India and the Maldives conducted the 4th Defence Cooperation Dialogue (DCD) in Male, Maldives on March 19, 2023. During the interaction, the two nations reviewed the ongoing bilateral defence cooperation activities and both sides apparently expressed satisfaction at the increasing engagements.

***Source:*** *Press Information Bureau*

# Developments in defence manufacturing industry…(4/8)

- **India-Malaysia 10th Sub-Committee on Military Cooperation:** The 10th meeting of Sub Committee on Military Cooperation between India and Malaysia was held in New Delhi on July 27, 2023. During the meeting, the existing defence cooperation between the two countries both sides explored effective and practical initiatives to further expand the bilateral defence engagements.
- **India-Australia 8th Defence Policy Talks**: The 8th India-Australia Defence Policy Talks (DPT) was held at Canberra in Australia on July 24-25, 2023. During the Defence Policy talks, both sides reviewed the bilateral defence cooperation between the two countries and explored new initiatives to further strengthen and deepen bilateral defence engagements. The discussions also focused on identifying ways to strengthen partnership in co-development and co-production of defence equipment.
- **10th ASEAN Defence Ministers' Meeting**: Defence minister, Mr. Rajnath Singh, participated in the 10th ASEAN Defence Ministers' Meeting - Plus (ADMM-Plus) in Jakarta, Indonesia, on November 16, 2023. During his address, he emphasized ASEAN centrality and India's dedication to upholding freedom of navigation and international laws, including UNCLOS 1982, in international waters and called for regional security initiatives that are consultative and development-oriented.
- **UK-India Defence Industry CEOs Roundtable**: During his UK visit, Defence Minister, Mr. Rajnath Singh met with top UK defence industry leaders, on January 10, 2024. He discussed enhancing the India-UK defence relationship and welcomed UK investment and technology collaboration, highlighting India's skilled workforce and favorable investment climate.
- **12th India-Oman Joint Military Cooperation Committee (JMCC) meeting**: India and Oman co-chaired the 12th JMCC meeting in Muscat on January 31, 2024, reviewing and applauding the strong defence cooperation between both nations while exploring new avenues for collaboration in training, joint exercises, information sharing, oceanography, shipbuilding, and MRO to enhance mutual trust and interoperability between their militaries.
- **Maiden Joint Defence Cooperation Committee (JDCC) meeting between India and Rwanda**: India and Rwanda held their inaugural JDCC meeting in Kigali, Rwanda in February 2024, focusing on bolstering defence collaboration through discussions on training, joint exercises, and defence industry cooperation, with the Indian delegation underscoring the capability of Indian defence manufacturers to export to allied nations.

9

## AI in Defence

- 75 newly-developed Artificial Intelligence (AI) products/technologies were launched by the Raksha Mantri, Mr. Rajnath Singh, during the first ever 'AI in Defence' symposium and exhibition organized by the Ministry of Defence in New Delhi.
- The products fall under various domains such as AI Platform Automation; Autonomous/Unmanned/Robotics systems; Block Chain-based Automation; Command, Control, Communication, Computer and Intelligence, Surveillance and Reconnaissance; Cyber Security; Human Behavioural Analysis; Intelligent Monitoring Systems; Lethal Autonomous Weapon Systems; Logistics and Supply Chain Management, Operational Data Analytics; Manufacturing and Maintenance; Simulators/Test Equipment and speech/voice analysis using Natural Language Processing.
- As on January 12, 2024, 58 projects have been completed and over 79 projects are targeted to be completed by March 2024.

***Source:*** *Press Information Bureau*

# Developments in defence manufacturing industry…(5/8)

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**10**

## IAF Weapon Systems branch

- In a historic step for the Indian Air Force, Government approved the creation of a new branch 'Weapon Systems (WS) branch'. It would entail unification of all weapon system operators under one entity dedicated to the operational employment of all ground-based and specialist airborne weapon systems.
- The branch would encompass operators in four specialised streams of Surface-to-Surface missiles, Surface-to-Air missiles, Remotely Piloted Aircraft and Weapon System Operators in twin/multi-crew aircraft. The branch will contribute immensely by enhancing the war fighting capability of the Indian Air Force.

**11**

## Submarine Launched Ballistic Missile

- INS Arihant carried out a successful launch of a Submarine Launched Ballistic Missile in October 2022. The missile was tested to a predetermined range and impacted the target area in the Bay of Bengal with very high accuracy. All operational and technological parameters of the weapon system have been validated.

**12**

## Brahmos Extended Range Version

- In May 2022, India successfully fired the Extended Range Version of BrahMos Air Launched missile from Su-30 MKI fighter aircraft. The launch from the aircraft was as planned and the missile achieved a direct hit on the designated target in the Bay of Bengal region.

***Source:*** *Press Information Bureau*

# Developments in defence manufacturing industry…(6/8)

13

## Prithvi-II

- A successful training launch of a Short-Range Ballistic Missile, Prithvi-II was carried out in June from the Integrated Test Range, Chandipur, Odisha. The missile is a proven system and is capable of striking targets with a very high degree of precision.

14

## Vertical Launch Short Range Surface-to-Air Missile

- Vertical Launch Short Range Surface to Air Missile (VL-SRSAM) was successfully flight-tested by DRDO and Indian Navy from an Indian Naval Ship at ITR, Chandipur. The system will further strengthen the Indian Navy for neutralising various aerial threats at close ranges including sea-skimming targets.

15

## Agni

- India carried out a successful training launch of Intermediate Range Ballistic Missile, Agni-3 from APJ Abdul Kalam Island, Odisha in November. It was part of routine user training launches carried out under the aegis of the Strategic Forces Command. The launch was carried out for a predetermined range and validated all operational parameters of the system. Earlier, in June, a successful training launch Agni-4 was carried out. It, too, validated all operational parameters as also the reliability of the system. The successful test reaffirms India's policy of having a 'Credible Minimum Deterrence' Capability.
- A successful training launch of a Medium-Range Ballistic Missile, Agni-1 was carried out by the Strategic Forces Command from APJ Abdul Kalam Island, Odisha on June 01, 2023.
- India achieved a milestone with the successful test flight of the Agni-V missile equipped with MIRVs, marking a significant advancement in nuclear deterrence capabilities.

***Source:*** *Press Information Bureau, News articles*

# Developments in defence manufacturing industry…(7/8)

16

## Phase-II Ballistic Missile Defence interceptor

- DRDO conducted a successful maiden flight-test of Phase-II Ballistic Missile Defence interceptor AD-1missile with large kill altitude bracket from APJ Abdul Kalam Island off the coast of Odisha in November.
- The flight-test was carried out with participation of all BMD weapon system elements located at different geographical locations.

17

## Man Portable Anti-Tank Guided Missile

- In January 2022, DRDO successfully flight tested the final deliverable configuration of Man Portable Anti-Tank Guided Missile. The indigenously developed anti-tank missile is a low weight, fire & forget missile and is launched from a man portable launcher, integrated with thermal sight.
- The missile impacted the designated target and destroyed it.

18

## Enabling Industry

- The present industry base supporting DRDO consists of 1,800 MSMSEs along with DPSUs and large-scale industries.
- DRDO has undertaken major initiatives through various policies to involve the Indian industry as Development cum Production Partners, offering its technology to the industry at a nominal cost and providing free access to its patents.
- Policy for free access of DRDO patents by the Indian industry has been promulgated.
- Technology Development Fund (TDF) Scheme also funds industries, especially start-ups and MSMEs up to an amount of Rs. 50 crore (US$ 6 million) for innovation, research and development of defence technologies in the field of defence and Aerospace.
- Till now, 64 projects have been awarded under the TDF scheme to various MSMEs, start-ups and large industries amounting to total project cost of approx. Rs. 280 crore (US$ 34 million).DRDO has two dedicated laboratories, the Centre for Artificial Intelligence and Robotics (CAIR), Bengaluru and DRDO Young Scientist Laboratory (DYSL)-AI, Bengaluru for application-oriented research in AI.

***Source:*** *Press Information Bureau*

# Developments in defence manufacturing industry…(8/8)

19

## Aero Engine Research and Development Centre (AERDC)

- On December 29, 2023, Defence Secretary Mr. Giridhar Aramane inaugurated a new design and test facility Aero Engine Research and Development Centre (AERDC) at Hindustan Aeronautics Limited (HAL) in Bengaluru, Karnataka. AERDC is engaged in designing and developing various engines, including the Hindustan Turbo Fan Engine (HTFE) for trainers, UAVs, and regional jets, and the Hindustan Turbo Shaft Engine (HTSE) for light and medium-weight helicopters.

20

## Green Propulsion System

- A Green Propulsion System developed under the Technology Development Fund (TDF) scheme of DRDO, showcased successful in-orbit functionality on a payload launched during the PSLV C-58 mission. The project, led by Bengaluru-based start-up Bellatrix Aerospace Pvt Ltd, surpassed all performance parameters as per Telemetry data from the PSLV Orbital Experimental Module (POEM) at ISRO's Telemetry, Tracking, and Command Network (ISTRAC). This eco-friendly propulsion system, comprising indigenously-developed components, offers a non-toxic solution ideal for low orbit space missions with high thrust requirements. The project, overseen by DRDO's Project Monitoring & Mentoring Group, highlights the success of the TDF initiative in fostering innovation within India's defence and aerospace sectors, particularly among start-ups and MSMEs.

***Source:*** *Press Information Bureau*

# Opportunities

# Opportunities in the defence manufacturing

## 1. Make in India Initiative

- The government's emphasis on the 'Make in India' initiative in the Defence sector provides huge opportunities for domestic players to enhance their indigenization efforts.
- Under the Atmanirbhar Bharat Initiative, five positive indigenization lists of 509 products have been promulgated by the Department of Military Affairs and Ministry of Defence to be manufactured domestically for the defence sector, instead of being sourced via imports.
- Government of India has planned replacement of aircraft fleet of the defence forces including Cheetah and Chetak helicopters with Naval Utility Helicopter, indigenous Light Utility Helicopter (LUH) manufactured by HAL under the "Buy (Indian-IDDM)" project and Russian built Ka-226T as "Buy & Make (Indian)".
- The Defence Minister, Mr. Rajnath Singh handed over two 'Made in India' platforms, a Fast Patrol Vessel and a Landing Craft Assault ship, to the Maldives National Defence Forces, during a visit to the country in May 2023.

## 2. Government Policy Support

- FDI in the defence sector is allowed up to 74% through automatic route (from earlier 49%) for companies seeking new industrial licenses. FDI beyond 74% and up to 100% will be permitted under the Government route.


## 5. Self-reliance

- The present 'Defence Production & Export Promotion Policy (DPEPP) 2020' is positioned as Ministry of Defence's overarching guiding document to provide a focused, structured and significant thrust to defence production capabilities of the country for self-reliance and exports.

## 4. Start-up India

- In the Interim Budget 2024-25, an allocation of US$ 7.2 million (Rs. 60 crore) was announced for the Technology Development Fund (TDF) scheme, specifically designed to support new startups, MSMEs, and academia engaged in defence-related innovation. It aims to attract young talent interested in niche technology development, fostering collaboration with DRDO.

## 3. Technological Modernization via Public Private Partnership

- 75 newly-developed Artificial Intelligence (AI) products/technologies are inaugurated. These products are expected to open up new business avenues for the Defence PSUs.
- DRDO's Technology Development Fund (TDF) for MSMEs & Startups to indigenize cutting-edge defence technologies. 163 Technologies being indigenized, US$ 30 million funds sanctioned, 1,703 experts and 5,020 companies engaged.
- Corpus of US$ 12 billion (Rs. 1 lakh crore) for Deep Tech, offering long-term loans to tech-savvy individuals and companies announced in Interim Budget 2024-25 to accelerate innovation in the defence sector, promoting the development of cutting-edge technologies.

***Source:*** *Press Information Bureau, Make in India*

# Government's effort on technological modernization of defence manufacturing

## 1. UNDER UPGRADATION OF FACILITIES

- In 2022, the Indian Air Force continued to modernise its airfield infrastructure under project - Modernization of Airfield Infrastructure (MAFI) with a major Indian company M/s Tata Advanced Systems Limited (TASL).
- The upgradation of navigational aids and infrastructure under this project is enhancing the operational capability by facilitating air operations of military and civil aircraft even in adverse weather conditions.

## 2. INDIGENOUS HELICOPTER DEVELOPMENT PROGRAM

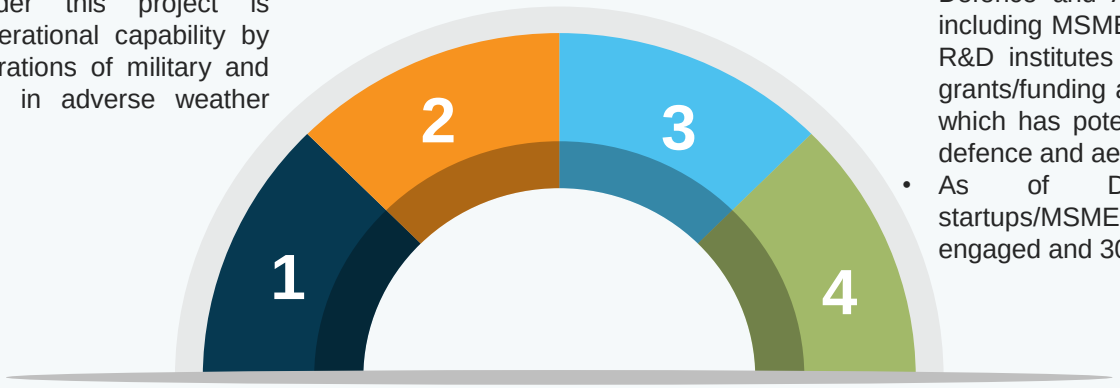
- Stand-Off Anti-Tank Missile: DRDO and IAF flight-tested the indigenously designed and developed Helicopter launched Stand-off Anti-tank (SANT) Missile from Pokhran ranges. The missile is equipped with a state-of-the-art MMW seeker which provides high precision strike capability from a safe distance.

## 3. INDUSTRIAL DESIGN CENTRE

- BEML established an 'Industrial Design Centre' at Bengaluru as a part of its new infrastructure creation, focusing on industrial designs and human factors as a part of developmental strategies. It is proposed to develop this facility as a national facility and would be offered to the industry in the next stage.

## 4. NEW INFRASTRUCTURE AND TECHNOLOGY

- The best minds of defence sector came together at over 20 seminars across three business days to brainstorm over wide-ranging topics on Defence R&D, new technologies for air warfare, Indigenization of Defence production, promotion of exports and encouraging investments at the DefExpo2022.
- Innovations for Defence Excellence (iDEX): iDEX aims at the creation of an ecosystem to foster innovation and technology development in Defence and Aerospace by engaging Industries including MSMEs, Start-ups, Individual Innovators, R&D institutes and Academia and provide them grants/funding and other support to carry out R&D which has potential for future adoption for Indian defence and aerospace needs.
- As of December 4, 2023, 433 startups/MSMEs/individual innovators have been engaged and 302 contracts have been signed.




***Source:*** *Press Information Bureau, Invest India, Make in India*

# Key players - value of production

| Key Player | | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 |
|---|---|---|---|---|---|---|---|---|---|
| Hindustan Aeronautics Limited (HAL) | | Rs. 17,152 Crore (US$ 2.6 billion) | Rs. 17,103 Crore (US$ 2.6 billion) | Rs. 17,553 Crore (US$ 2.5 billion) | Rs. 18,100 Crore (US$ 2.6 billion) | Rs. 20,579 Crore (US$ 2.7 billion) | Rs. 22,700 Crore (US$ 3.0 billion) | Rs. 23, 770 Crore (US$ 2.87 billion) | Rs. 27,055 Crore (US$ 3.29 billion) |
| Bharat Electronics (BEL) | | Rs. 7,775 Crore (US$ 1.2 billion) | Rs. 9,244 Crore (US$ 1.4 billion) | Rs. 9,706 Crore (US$ 1.4 billion) | Rs. 11,900 Crore (US$ 1.7 billion) | Rs. 12,348 Crore (US$ 1.7 billion) | Rs. 13,947 Crore (US$ 1.9 billion) | Rs. 15,321 Crore (US$ 1.8 billion) | Rs. 17,731 Crore (US$ 2.15 billion) |
| Bharat Earth Movers Limited (BEML) | | Rs. 2,740 Crore (US$ 0.4 billion) | Rs. 2,624 Crore (US$ 0.4 billion) | Rs. 3,227 Crore (US$ 0.5 billion) | Rs. 3,450 Crore (US$ 0.5 billion) | Rs. 3,320 Crore (US$ 0.5 billion) | Rs. 3,556 Crore (US$ 0.5 billion) | Rs. 3,992 Crore (US$ 0.4 billion) | Rs. 3,801.5 Crore (US$ 0.46 billion) |
| Bharat Dynamics Ltd. (BDL) | | Rs. 4,297 Crore (US$ 0.6 billion) | Rs. 5,011 Crore (US$ 0.8 billion) | Rs. 4,641 Crore (US$ 0.7 billion) | Rs. 3,235 Crore (US$ 0.5 billion) | Rs. 2,591 Crore (US$ 0.4 billion) | Rs. 2,043 Crore (US$ 0.3 billion) | Rs. 2,902 Crore (US$ 0.35 billion) | Rs. 2,508.4 Crore (US$ 0.30 billion) |

*In 2022-23, HAL and Bel registered an increase in the value of production on a YoY basis (HAL: 13.81%; BEL: 15.73%), whereas BEML and BDL registered a decrease in the value of production (BEML: -4.77%; BDL: -13.56%).*

***Source:*** *Ministry of Defence, Government of India, Company Annual report*

# Key Industry Contacts

# Key players in defence manufacturing (1/3)

| | Key Products/Projects | Revenue (2022-23) | Research and Development Activities |
|---|---|---|---|
| | • Su-30 MKI Aircraft<br>• LCA Tejas Aircraft<br>• Dhruv - Advance Light Helicopter (ALH) | Rs. 28,599.65 crore (US$ 3.44 billion) | • Hindustan Aeronautics Limited (HAL) and Bharat Electronics Limited (BEL) signed a contract for the co-development and co-production of the Long Range Dual Band Infra-Red Search and Track System (IRST) for the Su-30 MKI under the MAKE-II procedure of Defence Acquisition Procedure (DAP) 2020 as a part of the Make in India initiative. The key success has been in Advanced Light Helicopter (both utility and weaponized versions).<br>• The company designed and developed a real-time operating system with the highest design assurance level to support both safety critical and mission critical systems (RTOS is in use at the Indira Gandhi 32 Atomic Research Centre, Kalpakum on their hardware platform).<br>• In June 2023, GE Aerospace and Hindustan Aeronautics Limited (HAL) inked a pact to jointly produce fighter jet engines for Indian Air Force's Light Combat Aircraft (LCA)-Mk-II -Tejas.<br>• In December 2023, Mr. Giridhar Aramane, the Defence Secretary, unveiled a new design and test facility at HAL's Aero Engine Research and Development Centre (AERDC) in Bengaluru. The AERDC is currently involved in the design and development of several new engines including two strategic engines — Hindustan Turbo Fan Engine (HTFE) - 25 for powering trainers, UAV's, twin engine small fighter aircraft or regional jets and Hindustan Turbo Shaft Engine (HTSE) - 1200 for powering light and medium weight helicopters. |
| | • Radars<br>• Communication & C4I systems<br>• Electro-Optic | Rs. 18,006.22 crore (US$ 2.16 billion) | • Company made a 3-year R&D plan identifying future programs & various technologies, knowledge management portal, etc. On an average 10 new products are introduced annually. BEL spends ~9% annual turnover on R&D.<br>• Two production grade systems manufactured by BEL have been installed and trial evaluated on-board INS Gomati and INS Ganga. The Indian Navy has awarded BEL a contract for Maareech systems.<br>• In January 2024, Bharat Electronics Ltd (BEL) partnered with the Foundation for Innovation and Technology Transfer (FITT) at IIT Delhi to translate breakthroughs in Naval Deep Tech research into products for the Indian Navy. |

***Source:*** *Company Website, Annual Report*

# Key players in defence manufacturing (2/3)

| | Key Products/Projects | Revenue (2022-23) | Research and Development Activities |
|---|---|---|---|
| | • Armored Recovery and Repair Vehicle<br>• Heavy, Medium and Light Recovery Vehicles<br>• Aircraft Towing Tractor<br>• Military Rail Coaches and Military Wagons<br>• Aircraft Weapon Loading Trolley | Rs. 3,922.73 crore (US$ 472.6 million) | • In July 2020, the company received a contract from the Ministry of Defence (MoD) to supply 1,512 Track Width Mine Plough (TWMP) for T-90 S/SK Tanks; this boosts the 'Make in India' initiatives.<br>• In 2018-19, the company designed and developed high technology products/aggregates and upgraded existing products such as 155mm Mounted Gun System, 180T Hydraulic Excavator, 860 HP Bulldozer, Arjun Armored Repair & Recovery Vehicle.<br>• BEML Limited successfully designed, developed, and upgraded products across business verticals – Mining & Construction, Defence and Rail & Metro, throughout 2022-23. Over 75% of BEML's business was generated through in-house R&D developed products and the company submitted a total of 105 IPRs for registration, including 69 patents, 16 designs, 12 copyrights, and 8 trademarks, surpassing the target of 96. |
| | • Four missile destroyers under Project P15B<br>• Four stealth frigates under Project P17A<br>• Six Scorpene submarines under Project P75 | Rs. 8,514 crore (US$ 1.02 billion) | • The company has a dedicated indigenization department and 'Make in India' webpage linked to MoD's website. Many items of Ships & Scorpene Submarine are taken up for indigenization to achieve self-reliance. |

***Notes:*** *R&D - Research and Development*

***Source:*** *Company Website, Annual Report*

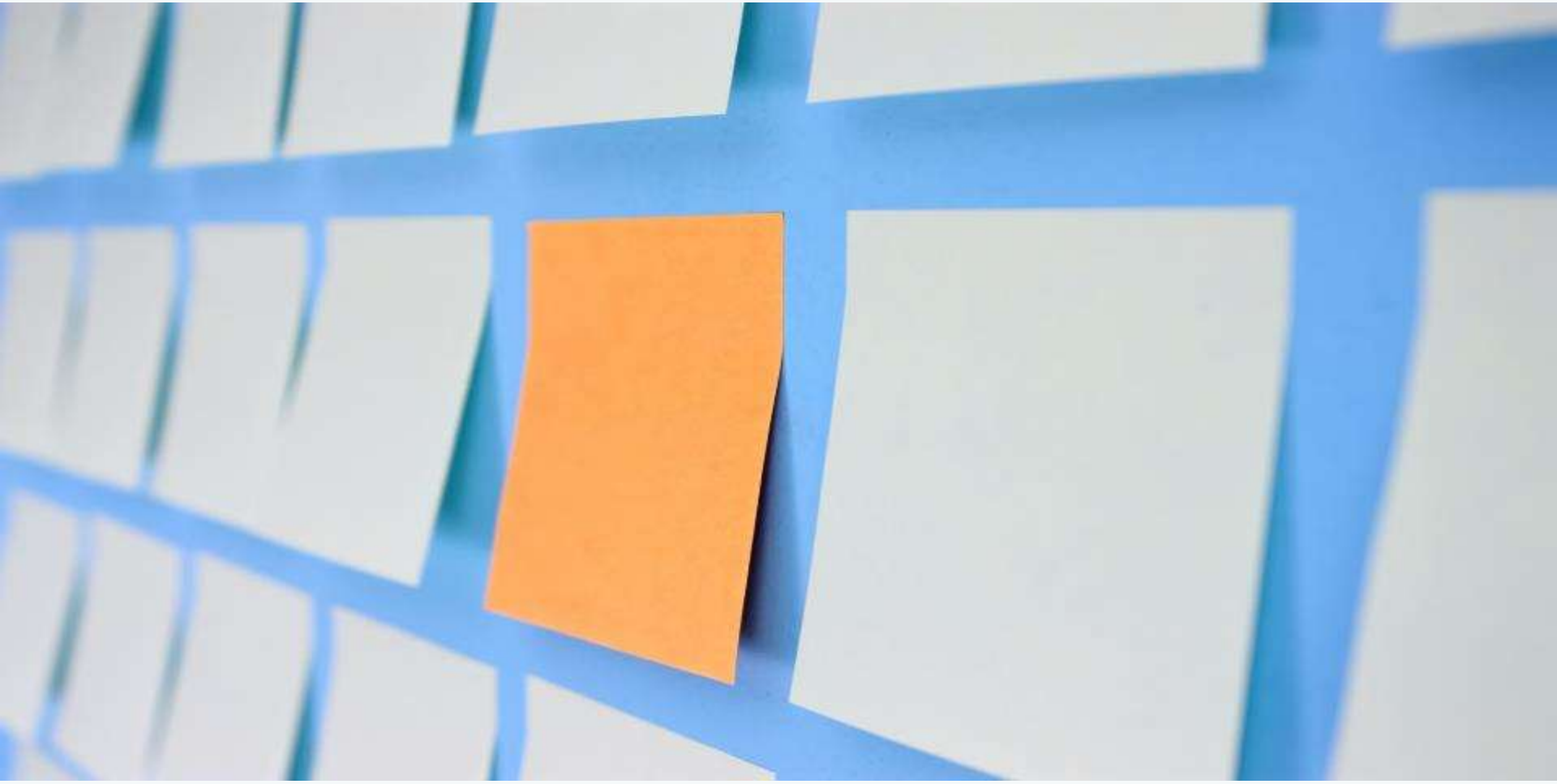
# Key players in defence manufacturing (3/3)

| | Key Products/Projects | Revenue (2022-23) | Research and Development Activities |
|---|---|---|---|
| | • The company has an order book for construction of 15 warships of the Indian navy, pertaining to 03 Projects, Stealth Frigates (P17A), Survey Vessel (Large) and ASW Shallow Watercraft (ASW-SWC) over the next 6-7 years (2027-2028) | Rs. 2,762.98 crore (US$ 333 million) | • The company introduced state-of-the-art 'Virtual Reality Lab' that added to its design capabilities.<br>• It has achieved the capacity of building 20 warships concurrently, post phase II modernization of facilities at its main unit.<br>• In a major move towards achieving India's goal of becoming the 'Global Hub for Green Shipbuilding' by 2030, the company signed a MoU in November 2023 with Shift Clean Energy (Shift), Seatech Solutions International (Seatech) and the American Bureau of Shipping (ABS), to develop Electric Tugs E-VOLT 50. The E-VOLT 50 aims to reduce carbon emissions, improve operational efficiency, and set new benchmarks for performance and environmental sustainability in the tugboat industry. |
| | • The company received Akash SAM order for supply of Akash Missiles, along with associated spares and first Heavy Weight Torpedo (Varunastra), from the production order of Indian Navy during 'Bandhan' Program in Feb. 20 | Rs. 2,644.79 crore (US$ 318.7 million) | • The company identified various products to meet requirements of the Indian Armed Forces and currently its research and development is focusing on the following missions:<br>• Amogha-III: Prototypes of all the sub-assemblies of the missile are being developed as per in-house designs.<br>• CMDS Mk-II with AI feature to provide self-protection to the aircraft against previously known missile threat at designated way points.<br>• Dispenser for AN-32 aircraft for dispensing flares and chaffs. |

***Notes:*** *R&D - Research and Development*

***Source:*** *Company Website, Annual Report*

# Appendix



# Glossary

- CAGR: Compound Annual Growth Rate
- Capex: Capital Expenditure
- DRDO: Defence Research and Development Organization
- GOI: Government of India
- EPCG: Export Promotion Capital Goods Scheme
- FDI: Foreign Direct Investment
- FY: Indian Financial Year (April to March); So, FY10 implies April 2009 to March 2010
- R&D: Research and Development
- US$ : US Dollar
- Wherever applicable, numbers have been rounded off to the nearest whole number

# Exchange rates

### Exchange Rates (Fiscal Year)

| Year | Rs. Equivalent of one US$ |
|---|---|
| 2004-05 | 44.95 |
| 2005-06 | 44.28 |
| 2006-07 | 45.29 |
| 2007-08 | 40.24 |
| 2008-09 | 45.91 |
| 2009-10 | 47.42 |
| 2010-11 | 45.58 |
| 2011-12 | 47.95 |
| 2012-13 | 54.45 |
| 2013-14 | 60.50 |
| 2014-15 | 61.15 |
| 2015-16 | 65.46 |
| 2016-17 | 67.09 |
| 2017-18 | 64.45 |
| 2018-19 | 69.89 |
| 2019-20 | 70.49 |
| 2020-21 | 73.20 |
| 2021-22 | 74.42 |
| 2022-23 | 78.60 |

### Exchange Rates (Calendar Year)

| Year | Rs. Equivalent of one US$ |
|---|---|
| 2005 | 44.11 |
| 2006 | 45.33 |
| 2007 | 41.29 |
| 2008 | 43.42 |
| 2009 | 48.35 |
| 2010 | 45.74 |
| 2011 | 46.67 |
| 2012 | 53.49 |
| 2013 | 58.63 |
| 2014 | 61.03 |
| 2015 | 64.15 |
| 2016 | 67.21 |
| 2017 | 65.12 |
| 2018 | 68.36 |
| 2019 | 69.89 |
| 2020 | 74.18 |
| 2021 | 73.93 |
| 2022 | 79.82 |
| 2023 | 82.61 |
| 2024* | 83.09 |

***Note:*** **- Until February 2024*
***Source:*** *Foreign Exchange Dealers' Association of India*

# Disclaimer



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