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Reimagining India's Defence Sector: Beyond Export Headlines to Real Indigenisation

 **BUSINESS STANDARD**

11 April 2026

ECONOMY**SECURITY & DEFENCE****SCIENCE & TECH****GS3****GS2**

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Business Standard

11 April 2026

GS3

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INTERVIEW ANGLE

"India's defence exports hit ₹38,424 crore in FY26 — but every frontline combat aircraft India makes flies on a foreign engine. Is India building a defence industry or just an assembly line?"

WHY IN NEWS

India's defence exports reached a record **₹38,424 crore in FY 2025–26** — a **62.66% surge** over FY 2024–25 (₹23,622 crore). *Business Standard* argues that while the headline is impressive, structural bottlenecks — particularly India's near-total dependence on **imported aero-engines** for all frontline combat aircraft — cap how far "indigenisation" truly extends. Sustained momentum requires shifting from assembly and integration to genuine deep technology development.

THE EXPORT MILESTONE IN CONTEXT

YEAR	DEFENCE EXPORTS	GROWTH
FY 2018-19	₹10,745 crore	—
FY 2022-23	₹15,920 crore	—
FY 2024-25	₹23,622 crore	—
FY 2025-26	₹38,424 crore (~\$4.6 billion)	+62.66%

Breakdown (FY26):

- Defence PSUs (DPSUs): ₹21,071 crore (up 151% YoY)
- Private sector: ₹17,353 crore

Top export destinations: USA, France, Armenia, Maldives, Sri Lanka, Mauritius, Philippines, UAE **Key export items:** Brahmos cruise missiles (Philippines contract — landmark export), artillery ammunition, radar systems, helicopters, offshore patrol vessels, small arms

The growth is real. India has moved from a near-zero defence export position in 2014 to the world's top-25 defence exporters in a decade — a genuine policy success.

WHERE THE INDIGENISATION STORY GETS COMPLICATED

| *The Aero-Engine Dependency*

Every frontline Indian combat aircraft flies on a foreign engine:

AIRCRAFT	ENGINE	ORIGIN
Tejas Mk-1 / Mk-1A	GE F404-GE-IN20 (90 kN wet thrust)	USA (GE Aerospace)
Tejas Mk-2 (planned)	GE F414 (98 kN)	USA (GE Aerospace)
AMCA (planned, 2035+)	GE F414 + Safran co-development	USA / France
Su-30 MKI (262 aircraft)	AL-31FP	Russia (Sukhoi/Saturn)
Mirage 2000 (49 aircraft)	SNECMA M53	France
MiG-29 / MiG-29K	RD-33	Russia

Why this matters: Aero-engines are the most technologically complex and strategically controlled defence components. Engine supply can be withheld as geopolitical leverage. India learned this with Russian AL-31FP supply disruptions during periods of diplomatic friction.

| *The Kaveri Engine Failure — A Case Study*

India's **Kaveri engine programme** — DRDO's effort since the 1980s to develop an indigenous engine for Tejas — failed to meet the required thrust specifications:

- Target: 85+ kN wet thrust
- Achieved: ~73 kN wet thrust (insufficient for Tejas combat weight requirements)
- Timeline overrun: 30+ years, still not flight-cleared
- Current status: Being repurposed for an unmanned aircraft variant; not suitable for manned fighter

The Kaveri failure is not for lack of investment in isolation — it reflects a broader structural deficit in India's high-temperature metallurgy and precision manufacturing ecosystem, which cannot be resolved by DRDO alone.

R&D Investment — The Structural Constraint

India's **total national R&D expenditure** stands at approximately **0.64% of GDP** (Economic Survey 2024-25). For comparison:

COUNTRY	R&D AS % OF GDP
USA	3.5%
China	2.4%
Israel	5.4%
South Korea	4.9%
India	0.64%

Important clarification: The 0.64% figure represents India's *entire* national R&D across all sectors. Defence R&D specifically — through **DRDO's budget of ₹26,816 crore in FY26** — represents approximately **0.07–0.08% of GDP**. DRDO receives only about 3.94% of India's total defence budget.

THE MISSING ECOSYSTEM

Deep technology indigenisation requires an industrial-technological ecosystem India is still building:

CAPABILITY GAP	CURRENT STATUS
High-temperature turbine blade metallurgy	Underdeveloped; imported alloys
Precision casting and forging	Growing through private sector but limited
Defence-grade semiconductors	Near-zero domestic production
Propulsion test infrastructure	GTRE (Kaveri) has limited capacity
Private sector R&D incentive	Limited defence R&D tax incentives

THE POLICY ARCHITECTURE

The government has created enabling structures — but their effectiveness depends on ecosystem development:

POLICY	SIGNIFICANCE
Defence Production & Export Promotion Policy (DPEPP) 2020	Target: ₹1.75 lakh crore turnover by 2025; \$5 billion exports
Positive Indigenisation Lists	509+ items reserved for domestic procurement; prevents imports
iDEX (Innovations for Defence Excellence)	Funds defence tech startups; Rs 100 crore corpus
Two Defence Corridors	UP (Lucknow-Aligarh-Kanpur) and Tamil Nadu — anchor industrial clusters
FDI liberalisation	74% automatic FDI in defence; 100% under government route

THE EDITORIAL'S CORE ARGUMENT

Business Standard does not dismiss the export numbers — it contextualises them. The argument: **India is excelling at the integration layer** (assembling, combining, and exporting platforms and subsystems) while remaining dependent on foreign suppliers for the hardest technological components (engines, seekers, advanced electronics).

This is not sustainable as a long-term defence strategy. Sustained momentum requires:

- 1 Dedicated national aero-engine development programme with ring-fenced multi-decade funding
- 2 Private sector-led defence R&D with DRDO in a coordination (not monopoly) role
- 3 Defence industrial corridors with genuine technology transfer conditions on all FDI
- 4 STEM talent pipeline for advanced materials and propulsion science

UPSC RELEVANCE

PAPER	ANGLE
GS3 — Economy	Defence manufacturing; indigenisation; PLI for defence; export policy
GS3 — Security	Technology dependence; aero-engine imports; DRDO
GS2 — Governance	DPEPP 2020; iDEX; defence corridor policy
Mains Keywords	DRDO, Kaveri engine, GE F414, indigenisation, DPEPP 2020, iDEX, Positive Indigenisation List, defence corridor, R&D investment

₹38,424 crore | Growth: **62.66%** over FY25 (₹23,622 crore) | DPSUs: ₹21,071 cr | Private sector: ₹17,353 cr | **Aero-engine dependence:** Tejas Mk-1A → GE F404 (USA) | Su-30 MKI → AL-31FP (Russia) | Mirage 2000 → SNECMA M53 (France) | MiG-29 → RD-33 (Russia) | **Kaveri engine:** ~73 kN achieved vs 85+ kN required — not flight-cleared for Tejas | **India total R&D/GDP: 0.64%** (all sectors; DRDO defence R&D ~0.07%) | DRDO budget FY26: ₹26,816 crore (~3.94% of defence budget) | GS3: Economy, Security & Defence

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