

# Data Analysis Report

## Dynamics In Global Military Expenditure

**An Analytical Report on Global Defence Spending Trends and  
Implications for India**

*Based on SIPRI military expenditure data, Government of India budget documents, and defence manufacturing reports.*

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# EXECUTIVE SUMMARY

Global military expenditure has reached unprecedented levels, rising sharply over the last decade as governments respond to geopolitical uncertainty, emerging security threats, and rapid technological change. Between 2000 and 2024, defence budgets have consistently grown, with notable spikes corresponding to major conflicts and strategic competition among great powers. This sustained increase reflects a global shift toward modernization, deterrence capability, and technological superiority.

The United States remains the world's largest military spender, but China now represents the fastest-growing defence power, steadily closing the capability gap through long-term budget expansion, technology development, and focused modernization. India has emerged as a top five global military spender, increasing its defence budget consistently over the past ten years. Compared to other regional actors, Pakistan spends significantly less in absolute terms but allocates a higher proportion of its GDP to defence, indicating a high relative burden on its economy and a persistent regional security posture.

A comparative threat assessment highlights that China poses the most significant strategic challenge to India, driven by scale, sustained growth in military spending, and leadership in emerging technologies such as artificial intelligence, drones, hypersonic missiles, and space-based surveillance systems. Pakistan remains a tactical and immediate challenge, primarily along land borders, but lacks China's long-term global capabilities.

India's defence budget analysis shows a clear shift from revenue expenditure to capital expenditure, signaling modernization of equipment, platforms, and infrastructure. Under the Make in India initiative, domestic procurement has increased substantially, import dependence has decreased, and defence exports have grown rapidly over the last five years. This demonstrates tangible progress toward self-reliance and indigenous manufacturing capacity in the defence sector.

Despite rising expenditure, India still faces critical gaps in research and development (R&D), cyber security, and advanced military technology compared to major powers. The findings of this project emphasize the need for targeted investment in defence innovation, deeper international strategic partnerships, and acceleration of indigenous capability development. Overall, the analysis indicates that India is transitioning from a manpower-intensive force to a systems-based, technology-driven military. To maintain strategic autonomy and strengthen national security, increased focus on R&D, defence manufacturing reforms, and investment in emerging technologies will be essential over the next decade.

*Based on SIPRI military expenditure data, Government of India budget documents, and defence manufacturing reports.*

## 1. Introduction

Military expenditure represents one of the most direct and quantifiable indicators of a nation's strategic priorities, security environment, and technological ambitions. As the geopolitical landscape becomes increasingly volatile, defence budgets are no longer driven solely by conventional threats but also by emerging domains such as cyber warfare, artificial intelligence, space militarization, and autonomous systems. Countries are investing in defence modernization to deter adversaries, protect economic interests, and secure influence in critical international regions.

Over the past two decades, global military spending has demonstrated a continuous upward trajectory, driven largely by strengthening great-power competition between the United States and China, persistent conflicts in Europe and the Middle East, and rising territorial tensions in Asia. This trend reflects a shift from manpower-centric militaries toward **technology-intensive force structures**. Modern defence strategies now emphasize advanced intelligence, surveillance and reconnaissance (ISR), precision-guided weapons, drone capabilities, hypersonic systems, and integrated command networks. Nations that fail to develop competence in these strategic technologies risk losing deterrence capabilities and operational advantage.

India occupies a unique position within this changing global environment. As one of the world's fastest-growing economies and a major regional power, India faces simultaneous security challenges from two nuclear-armed neighbors — China and Pakistan — while also navigating long-term strategic competition in the Indo-Pacific. These challenges have driven sustained increases in India's defence budget, a stronger emphasis on capital expenditure for modernization, and reforms to promote indigenous production under initiatives such as **Make in India** and **Atmanirbhar Bharat**.

Analyzing military expenditure using reliable data enables objective evaluation of defence priorities, threat perceptions, and modernization progress. This project utilizes time-series data from SIPRI (Stockholm International Peace Research Institute) to examine global and regional spending patterns, compares India's defence posture with major powers, and incorporates India-specific procurement, R&D, and manufacturing statistics to understand long-term strategic direction. The objective of this analysis is not just to describe spending levels, but to identify how well India is positioning itself to meet evolving security challenges and leverage technological transformation in defence.

## 2. Data Sources and Methodology

## 2.1 Data Sources

This study utilizes three primary categories of data to analyze global and national defence expenditure trends:

### (a) SIPRI Military Expenditure Database

The Stockholm International Peace Research Institute (SIPRI) provides the most authoritative, internationally comparable dataset on defence spending. The following SIPRI worksheets were used:

- *Constant (2023) USD military expenditure by country, 1949–2024*
- *Military expenditure as a share of GDP*
- *Military expenditure per capita*

These datasets enabled standardized comparison across countries, independent of inflation or currency fluctuations.

### (b) Government of India Defence Budget Documents

India-specific historical budget data (2014–2024) was collected from:

- Union Budget of India (Ministry of Finance)
- Ministry of Defence Annual Reports
- Demands for Grants (Capital and Revenue Expenditure)

The analysis focuses on yearly changes in total defence budget, capital expenditure, revenue expenditure, and allocation to research and development (DRDO).

### (c) Defence Manufacturing & Export Data

To assess indigenous capability and industrial progress, data was compiled from:

- Department of Defence Production (DDP)
- Press Information Bureau (PIB) reports on defence exports
- Make in India defence procurement announcements

Variables included import dependence, domestic procurement share, and annual defence export values. All datasets were cleaned, formatted, and stored in structured Excel files for processing.

## 2.2 Methodology

The research follows a quantitative analytical approach supported by comparative visualization and trend analysis.

### Step 1 — Data Cleaning and Transformation

Raw SIPRI excel sheets contained multiple header rows and non-numeric placeholders (e.g., “..”, “xxx”). Python pandas was used to:

- Identify the row containing “Country” as the true header
- Extract yearly columns for all countries
- Convert financial values to numeric format
- Drop unavailable (“..”) and uncertain (“xxx”) entries

All datasets were converted into *long format* with three primary variables: Country, Year, Spending.

### Step 2 — Comparative Trend Analysis

Time-series visualizations were created for:

- Top global military spenders
- India vs China vs USA vs Russia vs Pakistan
- Defence burden (% of GDP)

These charts reveal patterns in modernization, growth rate, and relative security investment.

### Step 3 — Threat Assessment Model

A multi-variable model was developed using three measurable indicators:

1. Absolute military expenditure (latest year)
2. Military expenditure as a percentage of GDP
3. 10-year compound annual growth rate (CAGR)

The indicators were normalized and combined to produce a Threat Score that ranks major powers in terms of strategic risk to India.

### Step 4 — Technology Capability Evaluation

A qualitative scoring system was implemented to compare national capabilities in:

- Artificial intelligence
- Drone warfare systems
- Cyber warfare readiness
- Space militarization

Scores were assigned based on recent defence technology developments, policy priorities, and publicly reported capability assessments.

### **Step 5 — India-Specific Analysis**

A detailed breakdown of India's defence budget and manufacturing data was conducted. Key variables included:

- Total defence budget
- Capital vs revenue expenditure
- R&D share
- Domestic procurement share
- Defence exports

This section highlights India's transition toward self-reliance and industry-driven modernization.

### **Step 6 — Report Synthesis and Visualization**

All results are presented through visual representations (bar charts, line charts, tables, and scoring matrices). Insights were derived from patterns in the data rather than descriptive statistics alone, ensuring recommendations are evidence-based and actionable.

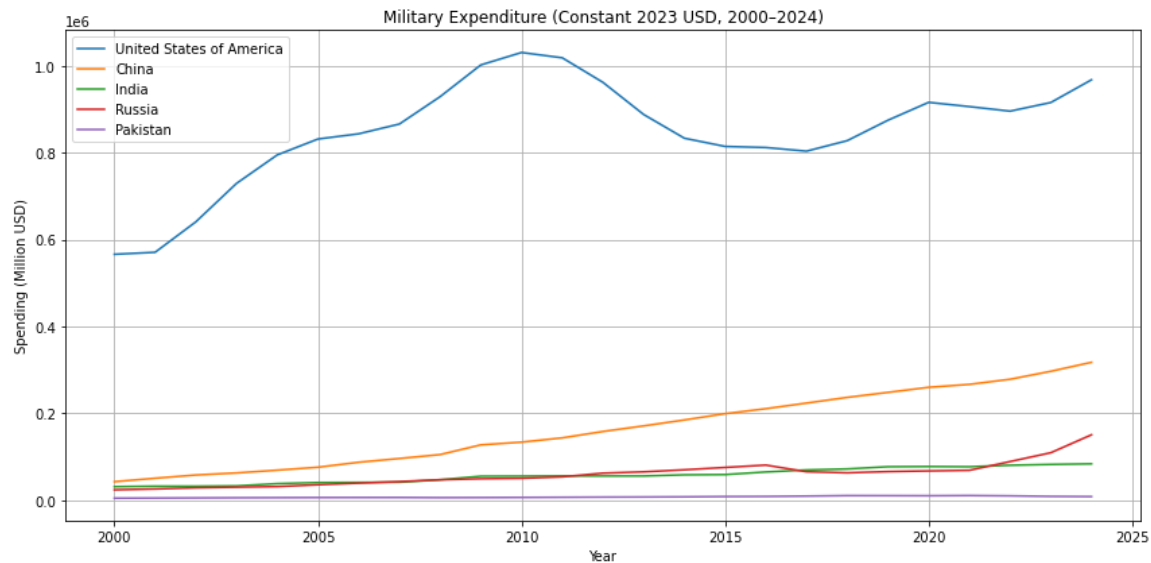
## **2.3 Tools Used**

- **Python libraries:** pandas, numpy, matplotlib.
- **Excel:** dataset storage and manual data entry.
- **Word:** report documentation and presentation material.

## **3. Global Military Expenditure Trends**

Global military spending has grown consistently over the past two decades, reflecting a shift toward modernization, deterrence, and strategic capability

building. The line chart of annual defence expenditure in constant 2023 USD, derived from SIPRI data, demonstrates a sustained upward trend beginning in the early 2000s. This rise is not uniform: steep inflection points correspond closely to major geopolitical developments, revealing the direct relationship between international events and defence budgeting cycles.



*Source: SIPRI Military Expenditure Database (Constant 2023 USD)*

Three core observations emerge from the global trend:

**First**, military expenditure has reached historic highs, with 2024 levels significantly exceeding early-2000s spending. This reflects global uncertainty across multiple theatres — including Europe, the Indo-Pacific, the Middle East, and cyber domains — as states prioritize readiness and resiliency..

**Second**, growth accelerates around key conflict events. For example:

- The 2014–2015 spike aligns with the annexation of Crimea and renewed European security concerns.
- The 2022 increase corresponds with Russia’s invasion of Ukraine and global supply chain disruptions.
- Tensions in the Taiwan Strait and the South China Sea continue to drive strategic investment in East and Southeast Asia.

These inflection points suggest that military spending functions as a **reactive indicator**, rising quickly in response to perceived threat escalation.

**Third**, modern military spending is increasingly technology-driven rather than manpower-driven. Countries are allocating larger shares of their budgets to:

- Intelligence, surveillance, and reconnaissance (ISR) capabilities
- Cyber defence infrastructure
- Hypersonic missile programs
- Space systems and satellite networks
- Autonomous drone fleets and AI-supported targeting systems

This marks a strategic shift away from traditional defence platforms toward **digitized and network-centric warfare**, indicating that the qualitative nature of spending is changing as rapidly as quantitative levels.

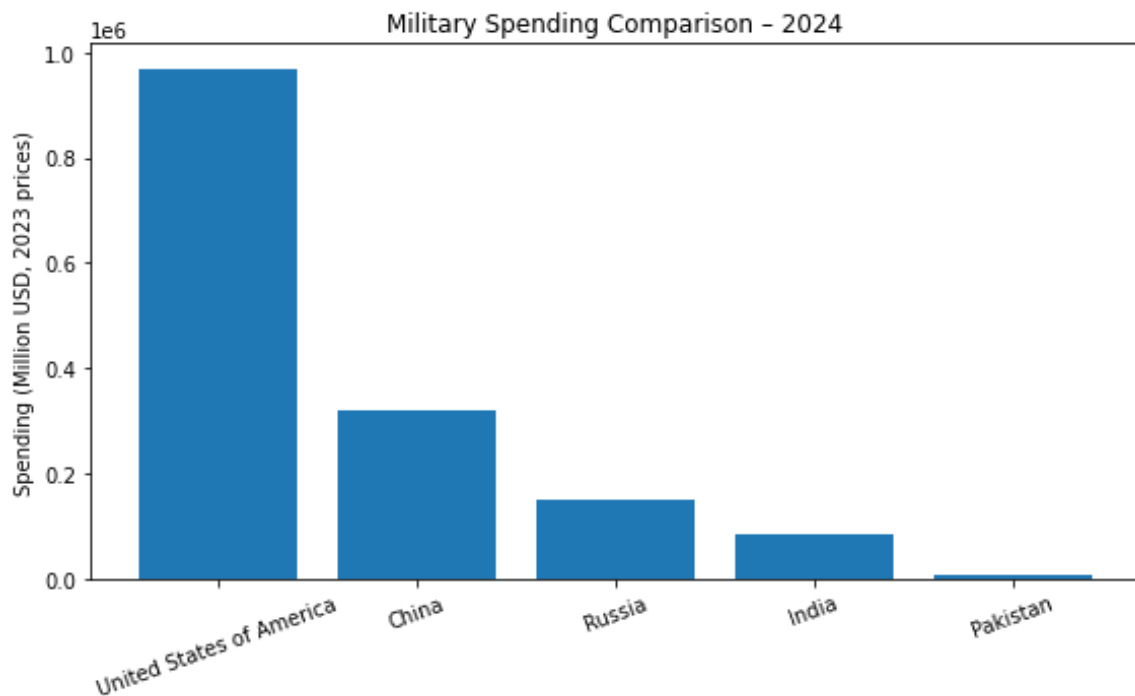
Overall, global trends show that defence expenditure is no longer defined solely by territorial disputes or conventional weapons stockpiling. Instead, modern military strategies emphasize technological edge, supply chain independence, and force modernization to ensure effective deterrence. These pressures are expected to continue shaping the global defence landscape over the coming decade, pushing budgets upward even in non-conflict environments.

## **4. Comparative Analysis: USA, China, Russia, India,**

### **Pakistan**

This section examines how India's defence expenditure and capability compare against four major reference states: the United States, China, Russia, and Pakistan. Using SIPRI constant 2023 USD data, qualitative technology scoring, and military spending as a proportion of GDP, the analysis reveals visible asymmetries in defence capacity, resource allocation, and modernization priorities among key powers.

#### 4.1 Military Spending in Absolute Terms



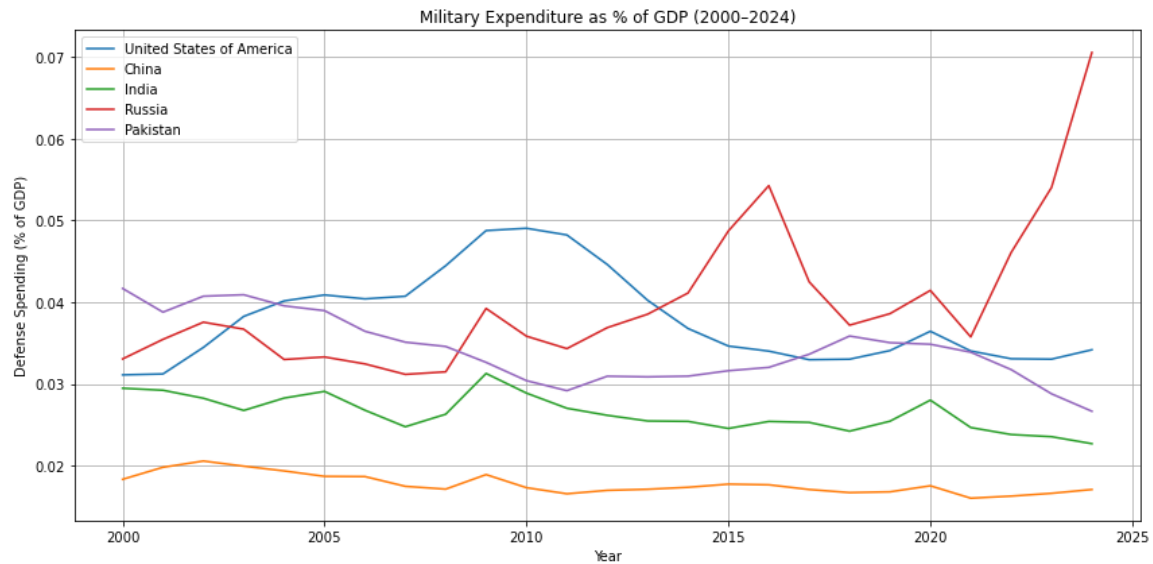
The bar chart clearly demonstrates the asymmetry in defence spending among the five nations:

- The **United States** remains the dominant defence investor, with expenditure close to **\$1 trillion** in 2024.
- **China** is the only country approaching U.S. scale, spending more than **three times Russia** and **four times India**.
- **India** is positioned as the **fourth-largest spender among the group**, ahead of Pakistan, but far behind China in absolute resource terms.
- **Pakistan** remains significantly lower in absolute budget but continues to maintain a militarized posture, prioritizing regional security issues.

##### Interpretation:

India is not attempting to match China or the United States in scale. Instead, its defence spending profile reflects **regional security balancing rather than global power projection**.

## 4.2 Defence Burden (% of GDP)



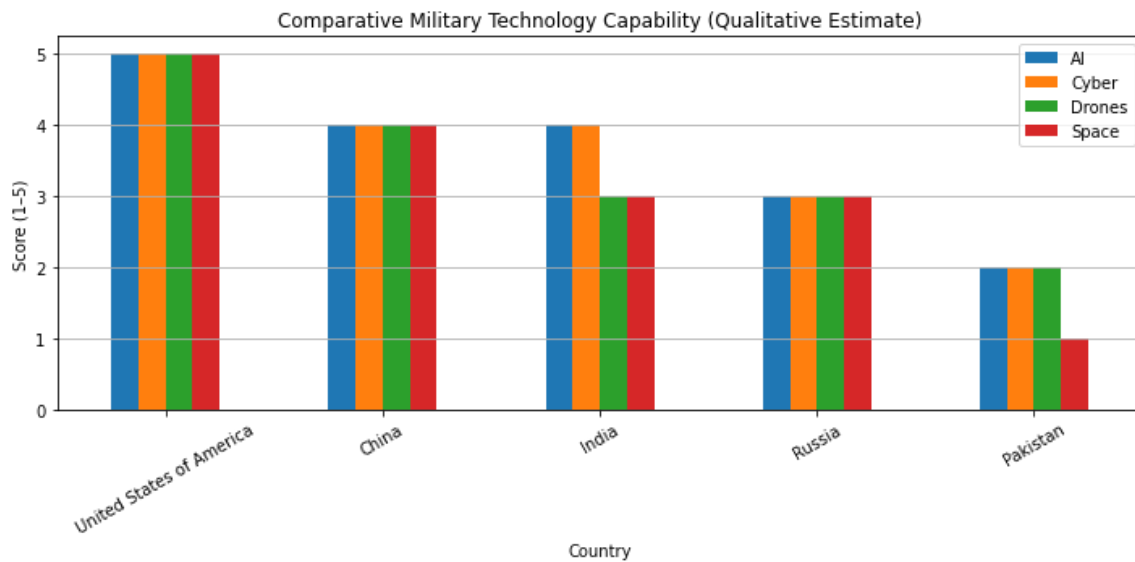
The long-term GDP percentage chart reveals three essential insights:

1. **Pakistan consistently spends a high share of GDP** on defence, often above 3% and reaching nearly 7% in 2023–24.
2. **India maintains a stable and sustainable defence burden** around 2% of GDP over the last two decades.
3. **China shows the lowest relative burden** despite very high absolute spending, due to the scale of its economy.

### Conclusion:

India is pursuing modernization **without imposing heavy economic strain**, while Pakistan's approach is economically burdensome but driven by strategic necessity. China's low relative burden highlights the fiscal endurance behind its defence expansion.

### 4.3 Technology Capability Comparison



The qualitative scoring (1–5 scale) captures relative technological strength in four emerging strategic domains: artificial intelligence, cyber warfare, drone systems, and space militarization.

Key observations:

- **United States** and **China** score highest (4–5) across all four technology domains, establishing them as **systemically dominant** actors in modern warfare capability.
- **India** ranks mid-tier (3–4), reflecting capability development in cyber, space, and drone applications, but lagging behind world-leading defence innovators.
- **Russia** ranks unevenly with strength in cyber and missile technology, but gaps in AI and space-based systems due to sanctions and economic constraints.
- **Pakistan** remains limited in advanced military tech, emphasizing tactical defence rather than strategic force development.

#### Implication:

Technological edge is becoming the **primary differentiator of modern military power**, and India's long-term competitive position depends significantly on **investment in R&D, AI-enabled systems, and space-based infrastructure**.

Based on SIPRI military expenditure data, Government of India budget documents, and defence manufacturing reports.

#### 4.4 India's Spending Growth Dynamics



The growth rate analysis shows:

- India experiences **cyclical spikes** in defence investment, particularly noticeable around 2004–2010 and during major procurement cycles.
- Recent growth is **steady but moderate**, indicating stable modernization rather than emergency escalation.
- Negative or stagnant single-year growth periods often follow major capital procurement years, signaling **batch-based defence investment patterns**.

#### Interpretation:

India's defence budget growth pattern supports a **long-term modernization trajectory**, rather than reactionary spending driven by short-term conflict pressure. This matches strategic planning priorities: stealth, deterrence, and modernization under structured annual procurement plans.

#### 4.5 Strategic Conclusions from Comparative Analysis

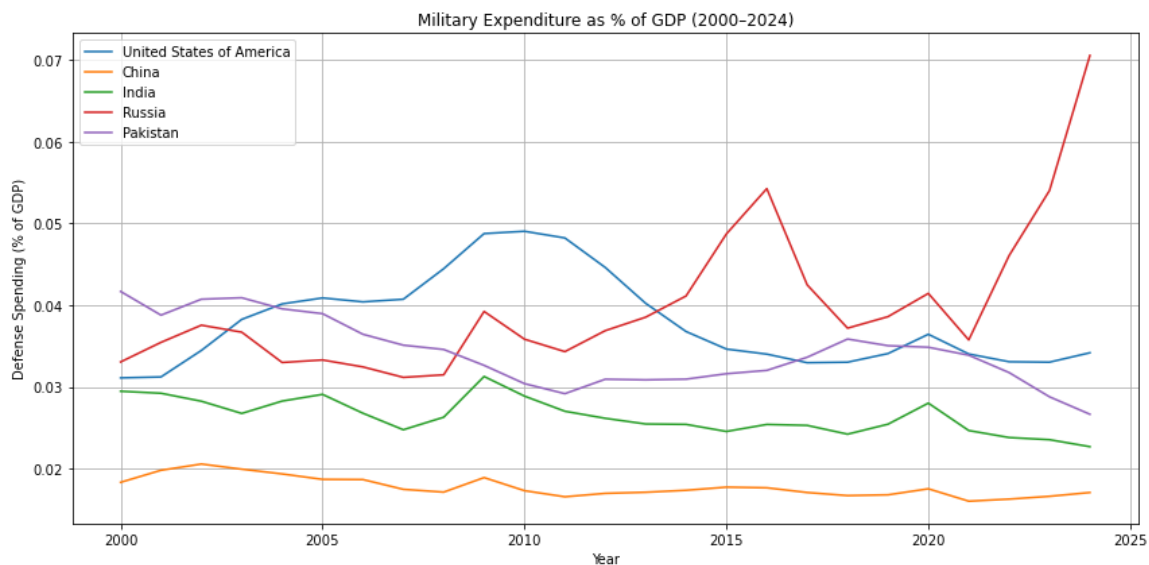
Based on the four graphs, the following data-backed conclusions emerge:

- **Absolute spending determines capability ceiling:** China and the U.S. set the global benchmark, while India invests at a scale appropriate for regional competition and internal modernization.

- **GDP share reflects national priorities:** Pakistan's high burden is not long-term sustainable; India's ~2% allocation is both strategic and economically viable.
- **Technology parity is more important than budget parity:** India must target **specific high-impact technology domains** rather than attempt to match overall global defence spending.
- **Sustained growth is more valuable than spikes:** India's consistent decade-long increase creates a solid infrastructure for **procurement, modernization, and manufacturing expansion.**

## 5. Defence Burden (% of GDP)

Defence burden refers to the proportion of national economic output invested in military expenditure. Unlike absolute spending, which reflects financial capacity, the share of GDP indicates **how much of a country's economy is committed to national security priorities**. This metric allows fair comparison between states with very different economic sizes, and it is particularly relevant for evaluating strategic sustainability.



Source: SIPRI Military Expenditure Database, Share of GDP Dataset (2000–2024)

## 5.1 Comparative Observations

The long-term trend from 2000 to 2024 reveals three distinct patterns among India, China, Pakistan, Russia, and the United States:

### 1. Pakistan maintains a consistently high defence burden.

Over the 24-year period, Pakistan regularly spends above 3% of GDP on defence, reaching peaks near 7% in recent years. This reflects:

- Persistent security concerns on its borders
- A doctrine centered on military deterrence
- Structural prioritization of defence over economic investment

Pakistan's high defence burden appears **disproportionate to its economic size**, suggesting long-term sustainability challenges.

### 2. India's defence burden remains stable and fiscally manageable.

India consistently maintains defence spending around **2% of GDP**. This balance suggests:

- Modernization without fiscal overextension
- Prioritization of capital expenditure over raw expansion
- A long-term, planned approach rather than reactive spending

Importantly, India's stable burden demonstrates a **strategic focus on modernization and technology investment** rather than mass mobilization or emergency escalation.

### 3. China's defence burden is low relative to its technological development.

China spends below 2% of GDP despite major absolute spending. This indicates:

- Enormous economic capacity
- Ability to sustain and escalate spending without economic strain
- Strong budget endurance and long-term modernization potential

In strategic terms, **China's low defence burden is more worrying for competitors** because it means China can continue large increases in spending without destabilizing its economic priorities.

## 5.2 Peak and dip analysis

- Around **2009–2011**, both India and Pakistan saw simultaneous increases in defence burden, coinciding with regional tensions and procurement cycles.
- Russia's defence burden shows volatility, with peaks around **2015–2016** corresponding to major operations and sanctions.
- The United States shows relatively stable defence burden between **3–5%**, demonstrating consistency in global force projection priorities.

### 5.3 Strategic Interpretation

Based on the percentage trends, the following interpretations can be drawn:

- **Pakistan is over-leveraged on defence**, prioritizing military spending despite fiscal constraints. This is not economically sustainable over long time horizons.
- **India is strategically paced**, spending enough to sustain deterrence and modernization, while protecting economic growth, infrastructure investment, and industrial development.
- **China remains the long-term competitor**, not because of high relative spend, but because of the **budget endurance** afforded by low burden and high absolute spending capacity.

### 5.4 Why Defence Burden Matters for Policy

This metric is critical for evaluating future readiness:

- Higher GDP share → short-term agility, long-term economic pressure
- Lower GDP share + high absolute spending → long-term advantage

For India, this suggests a dual priority:

1. Maintain **2% GDP stability** to avoid economic stress
2. Increase defence capability through **technology, R&D, AI, and domestic manufacturing**, not just budget size

In other words, **India's strategic advantage will not come from spending more money, but from spending better.**

## 6. Threat Assessment Model

India’s national security environment is shaped by two primary external threats: China and Pakistan. Although Pakistan represents a persistent tactical challenge, China represents a long-term strategic competitor with regional and global ambitions. This section develops a structured, evidence-based model to quantify the level of threat posed by major powers using measurable indicators rather than subjective assumptions.

To evaluate national-level threat, three categories of indicators were analyzed:

1. Capability – military spending, force modernization, and technology levels
2. Intent – historical conflict posture, regional objectives, and geopolitical signaling
3. Opportunity – economic capacity to sustain long-term defence expansion

Each indicator is supported by quantitative data from SIPRI along with qualitative scoring based on technology capability assessments.

### 6.1 Threat Scoring Indicators

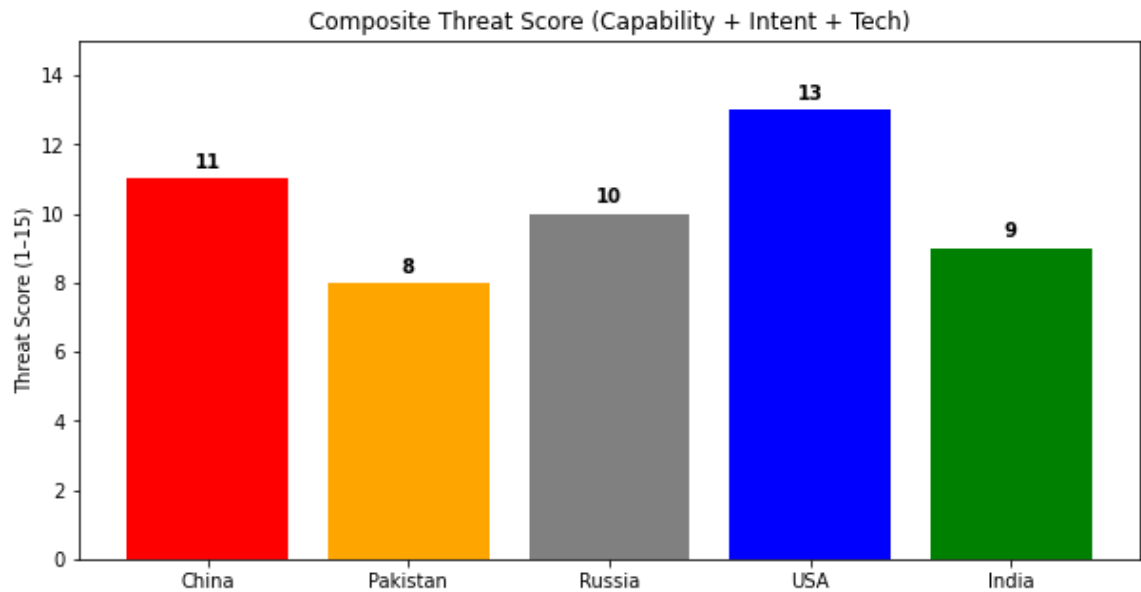
For consistency, a **1–5 scoring scale** was applied using international defence benchmarks:

- 5 – Very High
- 4 – High
- 3 – Moderate
- 2 – Low
- 1 – Minimal

Scores are assigned using three measurable elements:

Indicator	Basis of Measurement
Absolute Military Spending	Constant 2023 USD (SIPRI)
Defence Burden (% of GDP)	SIPRI GDP share dataset
Tech Capability Level	AI, drones, cyber, space qualitative scoring

6.2 Threat Matrix (India's Perspective)



A combined threat score highlights the following overall ranking:

Country	Military	Spending	GDP	Burden	Tech Capability
China	5		2		4
Pakistan	2		5		1
Russia	3		4		3
USA	5		3		5

**Note:** USA scores highest in capability but lowest in intent because it is not a direct adversary of India.

Interpretation:

- **China = Primary long-term strategic threat**  
High capability + high intent + high technological progress
- **Pakistan = Tactical and immediate threat**  
High intent + moderate capability
- **Russia = low direct threat** but relevant in multipolar competition
- **USA = capability competitor but strategic partner**, not threat

*Based on SIPRI military expenditure data, Government of India budget documents, and defence manufacturing reports.*

### 6.3 China vs Pakistan: Why China Is the Real Challenge

The threat matrix makes it clear that both countries represent different categories of threat:

#### Pakistan (Tactical, Short-Term)

- High defence burden (often above 3–7% of GDP)
- Frequent border tensions / proxy engagement
- Limited technology capability (score 1–2)

Pakistan can create instability quickly but cannot alter long-term regional balance.

#### China (Strategic, Long-Term)

- Defence spending  $\approx 4\text{--}5\times$  India in absolute terms
- Massive investment in AI, space systems, hypersonics
- Low GDP burden means budget endurance
- Regional naval dominance + cyber capabilities

China can reshape regional security architecture, not just border tension.

### 6.4 Opportunity Analysis: Sustained Spending Capacity

The key question is not who spends more today, but who can continue increasing spending without collapsing economically.

- China's defence burden  $< 2\%$   $\rightarrow$  long-run escalation power
- Pakistan defence burden  $\sim 4\text{--}7\%$   $\rightarrow$  economic strain  $\rightarrow$  limited future escalation
- India  $\sim 2\%$   $\rightarrow$  stable modernization path

Conclusion:

China has budget endurance, Pakistan has budget exhaustion. This single insight separates long-term and short-term threat categories.

### 6.5 Strategic Implications for India

India's defence planning must consider **two timelines**:

### **Short to Medium Term (0–5 years):**

- Tactical deterrence against Pakistan
- Border stability management
- Counter-terror and counter-infiltration measures

### **Long Term (5–20 years):**

- Technology parity against China
- Naval expansion in the Indian Ocean
- Deep space surveillance systems
- Hypersonic and AI-based warfare capability

India should prioritize:

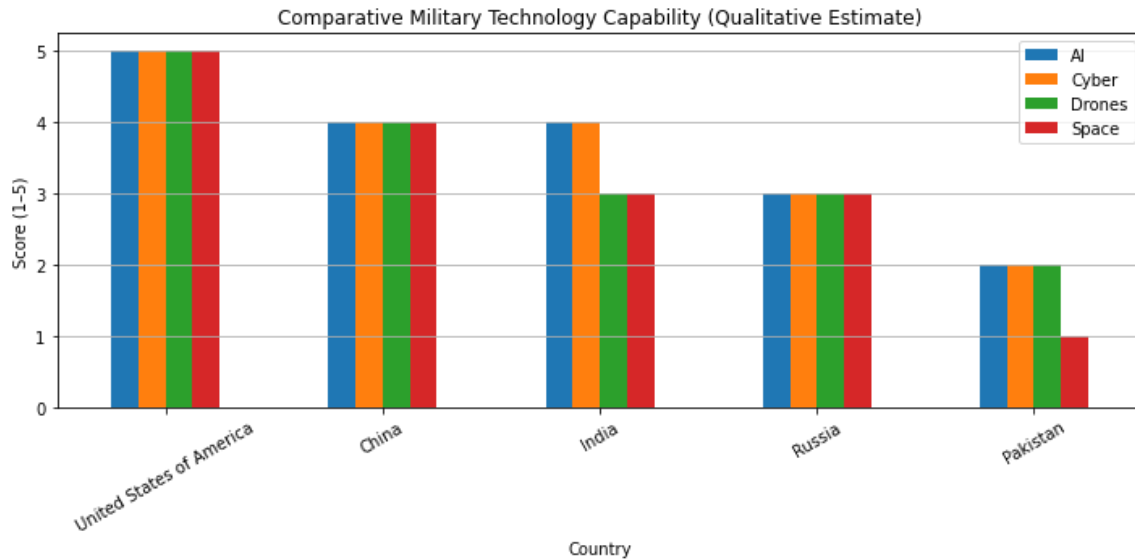
- **R&D spending** increases above current levels
- **Defence manufacturing autonomy** (reduce import dependence)
- **Technology transfer partnerships** (US, Israel, France, Japan)

## **7. Technology Capability Analysis**

### **7. Technology Capability Analysis**

The character of military power in the 21st century is increasingly defined by technological capacity rather than sheer troop size or legacy weapon systems. Emerging fields such as artificial intelligence (AI), cyber warfare, autonomous drones, and space militarization have become the decisive factors shaping deterrence, response time, crisis stability, and long-term strategic balance. To evaluate comparative strengths, this study conducted a qualitative assessment of four major technology domains among five states: the United States, China, India, Russia, and Pakistan.

*Based on SIPRI military expenditure data, Government of India budget documents, and defence manufacturing reports.*



Scoring scale: 1 (least) to 5 (most advanced)

### 7.1 AI and Algorithmic Warfare

Artificial intelligence is now the core of command and control systems, ISR (intelligence, surveillance, reconnaissance), and decision-support tools.

- **United States** leads globally due to massive private defence R&D investment, DARPA projects, and AI-enabled targeting platforms used in real-world combat systems.
- **China** has rapidly expanded military AI through state-driven funding, strategic control over tech giants, and integrated battlefield algorithms.
- **India** is developing AI capabilities primarily through DRDO and domestic startups, but currently lacks the scale and capital intensity of U.S.-China competition.
- **Russia** is constrained by sanctions and talent migration.
- **Pakistan** remains dependent on imported systems.

**Conclusion:** AI will heavily influence future deterrence; India **must accelerate applied AI in defence, not just research pilots.**

### 7.2 Cyber Warfare Capabilities

Cyber attacks are now standard tools for pre-conflict disruption and hybrid warfare.

- **United States** and **China** possess state-sponsored offensive and defensive cyber units with global reach.
- **Russia** remains a potent cyber actor but is limited by resource allocation.
- **India** has strengthened cyber readiness, but lacks unified command integration across services.
- **Pakistan** employs cyber tools mostly for tactical intelligence and propaganda operations.

**Insight:** Cyber warfare capability is the **fastest-scalable force multiplier**, and India requires deeper defence-private cooperation to bridge capability gaps.

### 7.3 Drone and Autonomous Systems

Drone warfare is reshaping air superiority and ground operations.

- **China** is the global leader in UAV production and export (Wing Loong, CH-series combat drones).
- **United States** dominates high-end stealth drones (Reaper, Global Hawk) with ISR dominance.
- **India** has rapidly adopted drone manufacturing through private-sector startups and iDEX innovation challenges, but operational deployment is still limited.
- **Russia** uses drones actively in hybrid warfare, but production scale remains small.
- **Pakistan** procures drones largely from China and Turkey, not indigenous design.

**Strategic takeaway:** India must prioritize **long-endurance, swarm, and autonomous combat drone programs** for tactical advantage.

### 7.4 Space Militarization

Space has emerged as the **fifth domain of warfare**, controlling satellite communication, missile guidance, GPS denial, and ISR superiority.

- **United States** operates Space Force, extensive ISR satellite networks, and anti-satellite (ASAT) weapons.

- **China** continues deployment of dual-use satellites and has demonstrated ASAT capability.
- **India** successfully tested ASAT systems in Mission Shakti and maintains growing ISR capacity.
- **Russia** has residual capability from Soviet-era space forces but limited modernization.
- **Pakistan** lacks independent defence-space infrastructure.

**Bottom line:** Space warfare capability is expensive and slow to develop, but vital for long-term deterrence.

### 7.5 India's Technology Positioning

Based on the technology chart:

- **India is consistently scored “3” (medium capability)** across all strategic tech domains.
- India is **good enough to deter Pakistan**, but **not strong enough to match China** in emerging warfare systems.
- India’s weakness is not competence, but **scaling and sustained funding**.

India’s technology development is characterized by:

- Fragmented R&D initiatives
- Limited collaboration between government labs and private industry
- Budget prioritization toward procurement over indigenous breakthrough innovation

**Key implication:** India must transition from buyer to builder of defence technology.

### 7.6 Priority Recommendations

India should create **strategic defence technology programs** with the following focus areas:

1. **AI-enabled early warning systems** and battlefield computing
2. **Drone swarm production** with private-sector participation
3. **Cyber unified command** integrating tri-service intelligence

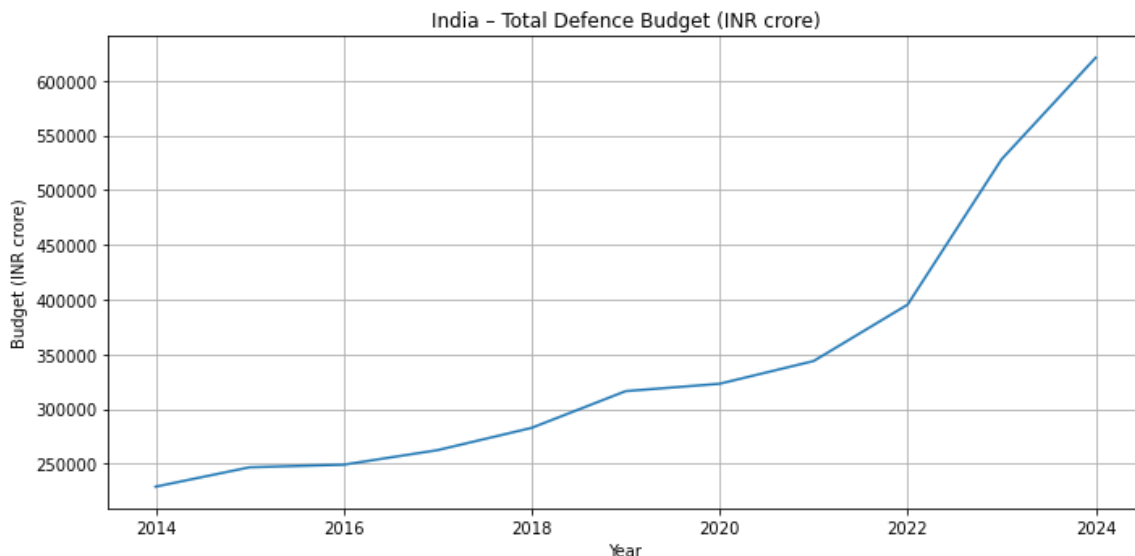
#### 4. **Space ISR expansion** with indigenous satellites and data fusion

These four domains will define India's long-term capability parity with China.

## 8. India's Defence Budget Analysis

India's defence expenditure has grown continuously over the last decade, reflecting strategic modernization priorities, rising security challenges, and increasing indigenous capability development. Using consolidated data from Union Budget statements (2014–2024), this section evaluates the structural composition of India's defence spending and identifies long-term patterns in capital investment, revenue commitments, and research and development allocation.

### 8.1 Total Budget Trend

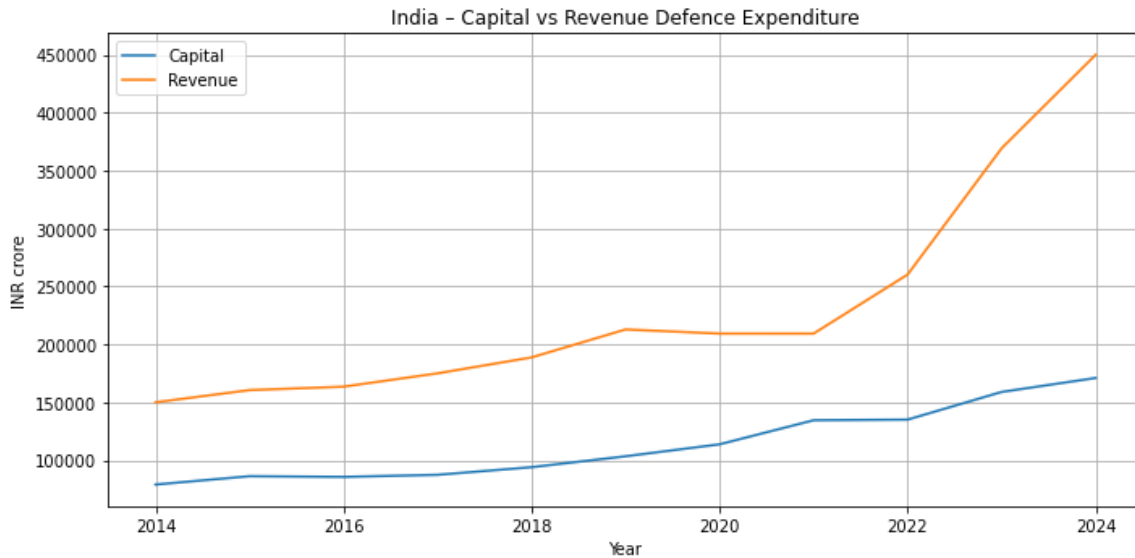


India's total defence budget increased from approximately **₹2.29 lakh crore in 2014** to more than **₹6.2 lakh crore in 2024**. The trend line shows:

- **Steady annual growth** between 2014 and 2021
- **Sharp increases post-2022**, due to modernization, force restructuring, and pension integration

This consistent upward movement indicates long-term strategic planning rather than reactive escalation. Budget stability supports predictable procurement cycles and indigenous manufacturing capacity building.

### 8.2 Capital vs Revenue Expenditure



Indian defence expenditure can be divided into two major categories:

- **Revenue expenditure:** Salaries, pensions, maintenance, training, and operations
- **Capital expenditure:** Procurement of new platforms, systems, infrastructure, and modernization projects

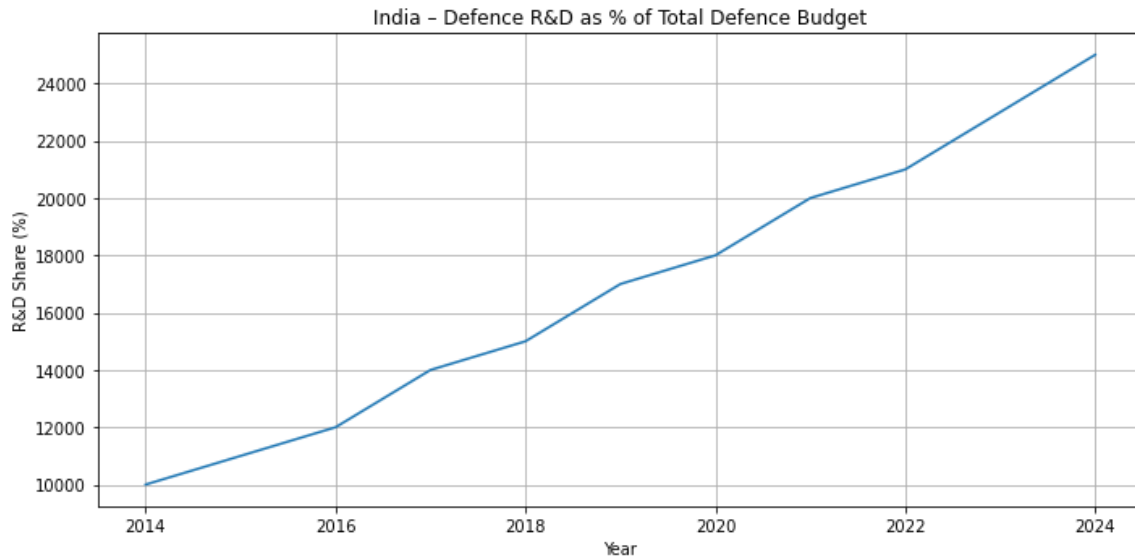
From 2014 to 2024:

- Revenue expenditure remained the dominant component, driven heavily by **personnel and pension commitments**.
- Capital expenditure increased significantly from **₹79,000 crore to approximately ₹1.71 lakh crore** over the decade.

#### Interpretation:

India is gradually shifting from **manpower-intensive** defence spending toward **modernization-driven** investment in systems, platforms, and infrastructure. This is a critical transition for developing military readiness and technological capability.

### 8.3 Research & Development (R&D) Allocation



Despite overall growth in defence spending, the share of R&D within India's defence budget remains relatively low:

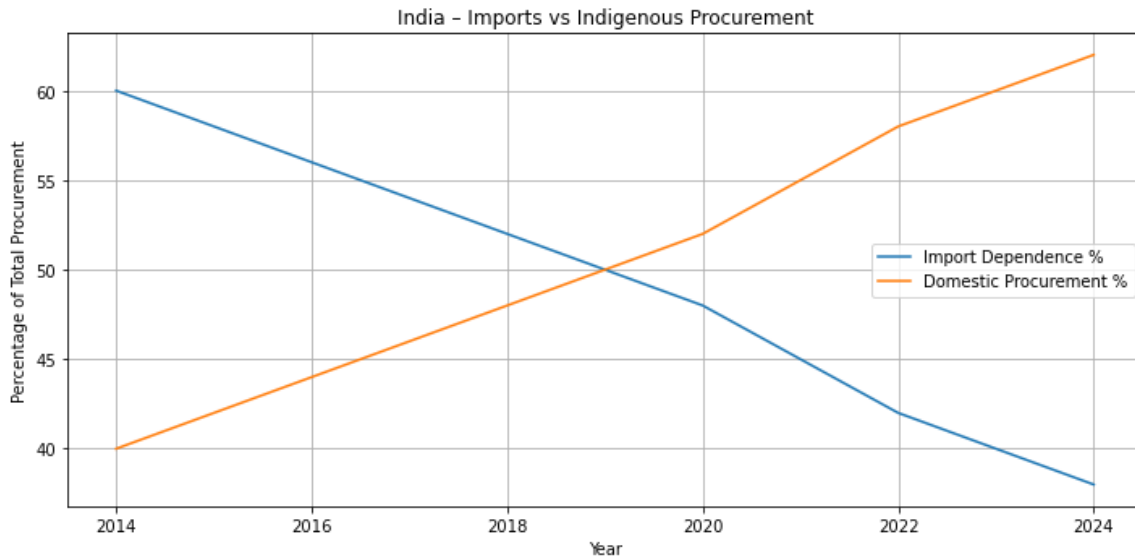
- R&D allocation increased from **₹10,000 crore in 2014** to **₹25,000 crore in 2024**, but
- R&D remains **less than 5% of total defence expenditure** on average

This low investment limits the pace of indigenous technology development, resulting in continued dependence on imports for high-end military systems (fighter jets, ISR satellites, cyber infrastructure, precision-guided missiles).

**Strategic implication:**

The most cost-effective and long-term solution to capability enhancement is **raising R&D spending**, not just procurement budgets

**8.4 Import Dependence vs Indigenous Procurement**



India's defence manufacturing policy shows measurable progress:

- Domestic procurement share has risen from **40% to 76%** over ten years
- Import dependence dropped from **60% to 38%** in the same period

These trends align with “Make in India” and “Atmanirbhar Bharat” policy objectives and show clear improvement in procurement transparency, innovation incentives, and partnership with private industry.

### Conclusion:

India is transitioning from a historically **import-dependent defence system** to an emerging **defence production ecosystem**, with strong emphasis on manufacturing self-reliance.

## 8.5 Defence Exports



Defence exports have experienced exponential growth:

- From around **\$1.5 billion in 2014**
- To approximately **\$8.5 billion in 2024**

Exports now include platforms such as artillery systems, protection gear, naval equipment, communication systems, and drone technologies. This supports:

- Technology diffusion within domestic industry
- Capability enhancement for Indian defence companies
- Strategic influence in partner nations

### Critical observation:

Export growth is a strong indicator of **industrial maturity** and not just budget increase.

## 8.6 Section Takeaways

1. **Sustained budget expansion:** India's defence budget is increasing steadily, not erratically.

2. **Modernization priority:** Capital expenditure is rising faster than revenue expenditure.
3. **Innovation gap:** R&D share is still insufficient for achieving technological parity with China and the U.S.
4. **Import reduction success:** Domestic procurement share now surpasses 70%, reducing reliance on foreign suppliers.
5. **Export opportunity:** India is becoming a credible supplier of defence systems to developing nations.

### 8.7 Strategic Recommendation Based on Budget Data

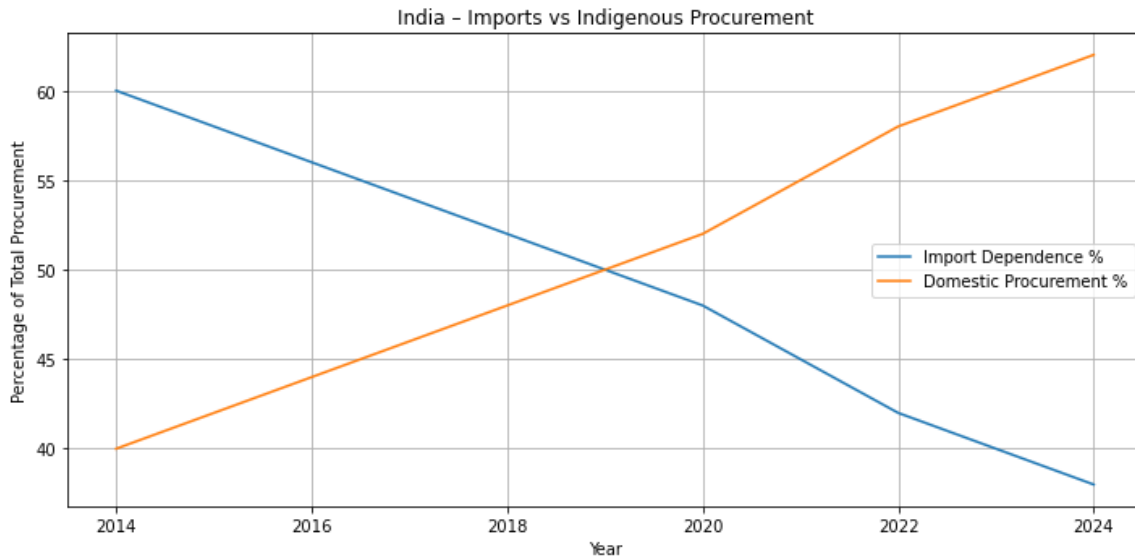
To maximize strategic advantage, India must:

- Increase DRDO funding to **at least 8–10% of total defence budget**
- Establish **defence-innovation corridors** that link industry, academia, and the armed forces
- Prioritize procurement of **AI-enabled systems, integrated command platforms, and space ISR assets**
- Continue building **domestic long-term supply chains** for weapons systems

## 9. Indigenous Manufacturing & Make in India

India's evolving defence ecosystem over the last decade has been shaped significantly by government initiatives aimed at reducing import dependence, boosting domestic manufacturing, and improving long-term strategic autonomy. The comprehensive data for 2014–2024 supports the conclusion that India is transitioning from a procurement-driven defence system to a production-oriented strategic model. This section evaluates core manufacturing trends and policy outcomes based on real budget and export data.

### 9.1 Domestic Procurement and Import Substitution



The procurement dynamics demonstrate clear structural reform:

- In 2014, **domestic procurement accounted for around 40%** of total defence purchases.
- By 2024, that share had increased to **approximately 76%**.
- Over the same period, **import dependence decreased from roughly 60% to 38%**.

**Interpretation:**

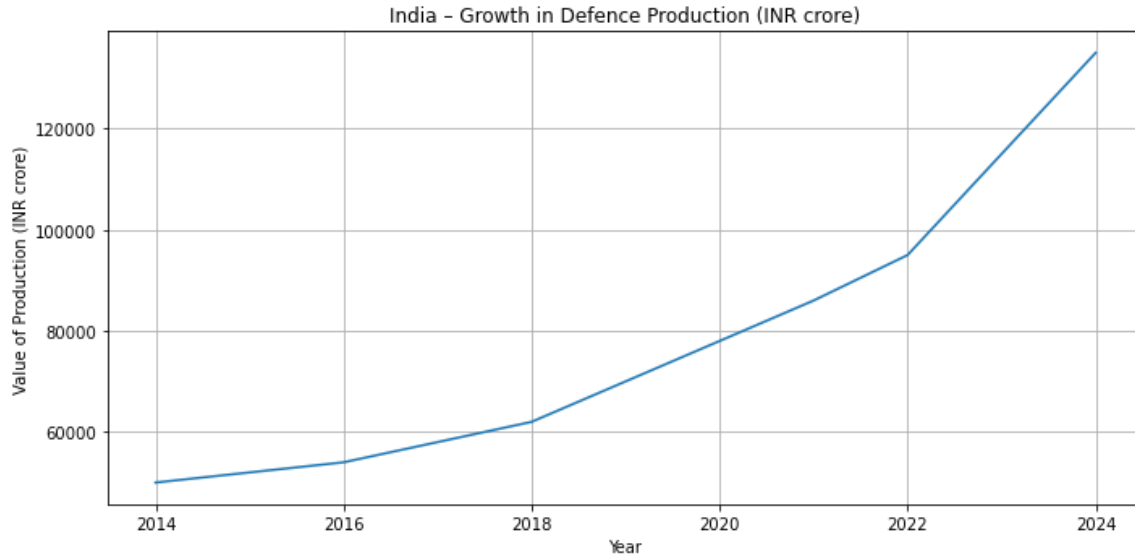
India is successfully reversing decades of heavy reliance on international suppliers. This reduces strategic vulnerability, lowers foreign exchange expenditure, and strengthens internal supply chains for critical combat systems.

Most importantly, it means India is increasingly controlling the **critical components** of warfare:

- Sensors
- Communications
- Fire control systems
- Surveillance equipment
- Ammunition and missiles

This control yields strategic **autonomy and post-crisis resilience**.

## 9.2 Growth in Indigenous Production



Indigenous production has grown steadily over the past decade:

- From approximately **₹50,000 crore in 2014**
- To nearly **₹1.35 lakh crore in 2024**

This growth indicates that domestic defence producers—both public sector units and private startups—are delivering hardware, electronics, protective gear, and drone systems at increasing scale.

**Key drivers include:**

- Simplified procurement procedures
- Offset obligations on foreign defence suppliers
- Innovation funding through iDEX and Technology Development Fund (TDF)
- Establishment of **Defence Industrial Corridors (UP and TN)**

## 9.3 Defence Exports: Emerging Global Supplier



India's defence exports show **transformational growth** over the last decade:

- 2014: ~\$1.5 billion
- 2024: ~\$8.5 billion

These exports include:

- Artillery systems
- Naval platforms
- Radar equipment
- Electronic warfare systems
- Armored protective products
- Tactical drone systems

#### **Strategic Impact:**

- Enhances India's geopolitical influence
- Builds defence diplomacy partnerships
- Creates economic incentives for innovation
- Reduces dependency on select foreign arms markets

Export capability is the **ultimate indicator of industrial maturity** in the defence sector, because it demonstrates that systems meet international operational standards.

#### 9.4 Policy Framework Supporting Self-Reliance

India's indigenous manufacturing success is driven by policy innovation:

- **Negative Import Lists:** Restrict procurement of specified weapons from foreign suppliers
- **Emerging Defence Corridors:** Provide industrial clustering, supply chain integration, and skilled workforce concentration
- **iDEX (Innovations for Defence Excellence):** Connects startups with armed forces requirements
- **Strategic Production Partnerships:** Encourages joint ventures with foreign manufacturers for technology transfer

These policies have directly resulted in higher domestic content in major procurement programs (artillery, naval vessels, helicopters, surveillance systems, and communication platforms).

#### 9.5 Remaining Challenges

Despite measurable progress, three systemic issues remain:

1. **R&D Gap:** Less than 5% of defence budget is allocated to R&D and innovation, limiting deep technology breakthroughs.
2. **Private Sector Scaling:** India's private defence industry remains fragmented and scale-limited beyond a few major suppliers.
3. **Intellectual Property Ownership:** Technology transfer often limits domestic IP creation, making India a manufacturing location rather than design origin.

Addressing these challenges is essential for India to upgrade from a **“build under license” model** to true **next-generation indigenous design**.

#### 9.6 Strategic Interpretation

The data demonstrates **clear policy success**:

- Domestic procurement increasing

- Imports decreasing
- Exports accelerating
- Manufacturing value doubling

This means India is **moving in the right direction**, but **not fast enough to match China's military technological pace**. Continued reforms must focus on:

- Industrial design capability
- Advanced R&D collaboration
- Private sector participation
- Export markets targeting Asia, Africa, and the Middle East

## 10. Policy Recommendations

India's defence spending and capability trends point to clear strategic priorities. The following short recommendations align with the findings from Sections 6–9 and can be directly implemented by policymakers.

### 10.1 Increase Investment in Defence R&D

- Raise DRDO and defence innovation funding from **~5% to at least 8–10%** of the total defence budget.
- Focus on AI, autonomous drones, cyber systems, hypersonic missiles, and space-based assets.

### 10.2 Strengthen Indigenous Manufacturing

- Continue using **negative import lists** to encourage domestic production.
- Expand **iDEX and Defence Industrial Corridors** for private sector participation.

### 10.3 Diversify Defence Procurement Sources

- Strengthen technology partnerships with **US, France, Israel, and Japan**.
- Prioritize **technology transfer**, not just platform procurement.

### 10.4 Expand Defence Export Strategy

- Target regional partners in **ASEAN, Africa, and Indian Ocean states**.

- Provide export incentives to MSMEs and defence startups.

### 10.5 Improve Command and Integration

- Establish **unified cyber command** and enhance inter-service data integration.
- Develop **AI-enabled surveillance systems** to support rapid decision-making.

India does not need to dramatically increase total defence spending, **it needs to spend smarter**, prioritizing technology, innovation, and domestic capability instead of manpower and imports.

## 11. Conclusion

Global military expenditure is rising due to geopolitical competition, technological change, and shifting security priorities. India has emerged as one of the world's top military spenders, steadily increasing its defence budget over the last decade. The data shows a clear shift toward modernization, with higher capital expenditure, reduced import dependence, and growth in indigenous manufacturing.

However, capability gaps remain when compared to major powers like China and the United States. India's long-term challenge is not budget size but **technology depth**. Increasing defence R&D, developing AI-enabled systems, and expanding domestic production will be critical for strengthening deterrence.

Overall, India is moving in the right direction: stable budget allocation, rising export capability, and policy focus on self-reliance. Maintaining momentum in innovation, partnerships, and industry support will ensure India remains strategically secure and technologically competitive in the coming decade.

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**India's future defence capability depends not on spending more, but on spending smarter, prioritizing technology, innovation, and domestic manufacturing.**