



## China's Weaponization of Supply Chains

**For Prelims:** [Make in India initiative](#), [Line of Actual Control](#), [Belt and Road Initiative](#), [Production-Linked Incentive](#), [China Plus One strategy](#)

**For Mains:** Supply Chain Disruptions and Economic Security, India's Electronics Manufacturing Sector

[Source: TH](#)

### Why in News?

China has **weaponised supply chains** by restricting its engineers and technicians at Apple-Foxconn's India facilities and curbing exports of critical manufacturing equipment.

- This move is seen as an attempt to slow down **India's growing electronics manufacturing sector** and impact the country's broader ambitions under the ['Make in India' initiative](#).

### How is China Disrupting India's Supply Chains?

- **Control Over Supply Chains:** China dominates the global electronics supply chain. By restricting technicians and key equipment exports, it aims to disrupt India's production and hinder skill transfer to Indian workers.
  - This pressure tactic strengthens **Beijing's bargaining position against India**.
  - India imports a significant share of smartphone components from China. The latest restrictions highlight India's vulnerability and the need for self-sufficiency.
- **Delaying Tunnel Boring Machines (TBMs):** Since 2019, China has **delayed customs clearance** for **German TBMs** imported by India, crucial for **metro, rail, road, and strategic mountain tunnels** near the [Line of Actual Control \(LAC\)](#).
  - Beijing fears these tunnels **enhance Indian military logistics**, enabling faster troop movement along the LAC.
- **Curbs on Critical Minerals Exports:** Since 2023, China has **imposed curbs on exports of germanium and gallium**, key materials for **semiconductors, solar panels, and advanced electronics**.
  - While **gallium** can be extracted from India's **bauxite reserves**, **germanium imports remain a challenge**, which is critical for semiconductors and military applications.
- **Belt and Road Initiative (BRI):** Through the [BRI](#) and industrial investments, China ensures multinationals remain reliant on its supply chains.
  - For example, despite US sanctions, companies like Tesla continue major operations in China due to its **cost-effective production ecosystem**.

### Why is China Weaponising Supply Chains?

- **Preventing India as Manufacturing Hub:** China's dominance in **high-tech manufacturing** and consumer electronics is being challenged as **Apple and other firms shift to India**.
  - India now produces **14% of the world's iPhones**, with projections to reach **25-40%**.
  - With **unemployment rising in China**, the government fears losing high-value jobs to India, especially in **sunrise industries** like AI-driven consumer tech.
- **Retaliation for India's Economic Restrictions:** Since the **2020 Galwan Conflict**, India has **banned Chinese apps**, restricted Chinese investments and investigated Chinese firms for illegal activities.
  - China's latest export curbs aim to **force India into trade negotiations** by leveraging supply chain disruptions.
  - China uses trade restrictions to punish countries for political disagreements.
- **India's Resilience in Global Trade:** China has struggled with **effective economic sanctions**, unlike the US, which has strong global alliances.
  - These **selective export denials** allow China to assess how India **adapts to supply chain disruptions** before escalating further restrictions.

## India's Efforts to Counter Supply Chain Vulnerabilities

- **Production-Linked Incentive (PLI) Scheme**
- **National Manufacturing Mission**
- **Duty Reductions on Components:** Union Budget 2025 removed import duties on **critical mobile phone components** (e.g., printed circuit boards, camera modules, connectors, sensors and lithium-ion battery manufacturing machinery).
- **Skill Development Initiatives:** **National Skill Development Mission**, **Skill India Mission**, **SANKALP Scheme**, **TEJAS Skilling Project**, **Model Skill Loan Scheme**.

## What Challenges Does India Face in Electronics Manufacturing?

- **Heavy Dependence on Imports:** India **imports over 75% of electronic components**. Lack of domestic supply chains for **high-end manufacturing equipment** limits India's ability to scale up production.
  - This reliance on imports makes key industries vulnerable to disruptions despite initiatives like the **Semicon India Program**.
- **Shortage of Skilled Workforce:** India lacks specialized talent in **chip design, electronics assembly, and automation**, critical for high-tech manufacturing.
- **Weak Ecosystem for Ancillary Industries:** Unlike China, India **does not have a strong network of local suppliers** for key smartphone and electronics components.
- **Lack of R&D:** Most high-tech research and development (R&D) in electronics is concentrated in **the US, Taiwan, South Korea, and China**, with limited innovation in India.
  - India must **invest in research institutions, industry-academia collaboration, and patent generation** to build a competitive edge.

## Way Forward

- **Strengthen Domestic Manufacturing:** Expand the **PLI** to boost local production of semiconductors, **critical components, and high-tech machinery**.
  - **Secure alternative suppliers** for **germanium and gallium** from countries like **Japan, South Korea, and the US**.
  - **Fast-track domestic extraction of gallium** to meet India's semiconductor demand.
- **Trade Alliances and Technology Partnerships:** India should strengthen trade alliances, with collaborations like the **Chip 4 Alliance (US, Japan, South Korea, and Taiwan)** helping to reduce dependency on China and build resilient supply chains.
  - Use international forums like **World Trade Organisation (WTO)** and **G20** to highlight **China's supply chain weaponisation**.

- Utilising the **China Plus One strategy**, India must attract global manufacturers by promoting itself as a **sustainable business location** and capitalizing on its booming economy and startup ecosystem.
- **Skilled Workforce:** On-site worker training and specialized **skill development programs** are needed to bridge the talent gap.

**Drishti Mains Question:**

Critically analyze India's challenges amid China's workforce and export restrictions. Suggest measures to strengthen domestic capabilities.

**UPSC Civil Services Examination Previous Year Question (PYQ)**

**Prelims**

**Q. Belt and Road Initiative' is sometimes mentioned in the news in the context of the affairs of (2016)**

- (a) African Union
- (b) Brazil
- (c) European Union
- (d) China

**Ans: (d)**

**Mains**

**Q1.** The China-Pakistan Economic Corridor (CPEC) is viewed as a cardinal subset of China's larger 'One Belt One Road' initiative. Give a brief description of CPEC and enumerate the reasons why India has distanced itself from the same. **(2018)**

**Q2.** "China is using its economic relations and positive trade surplus as tools to develop potential military power status in Asia". In the light of this statement, discuss its impact on India as her neighbour. **(2017)**