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ERIA-CII-ISID Study on India–Japan Economic Partnership for Resilient and Diversified Value Chains

Edited By

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ERIA-CII-ISID Study on India–Japan Economic Partnership for Resilient and Diversified Supply Value Chains

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Executive Summary

The Economic Research Institute for ASEAN and East Asia (ERIA), the Confederation of Indian Industry (CII), and the Institute for Studies in Industrial Development (ISID) established the India–Japan Platform for Supply Chains and Investments in 2024, in which the Association of Southeast Asian Nations (ASEAN) and Australia are important constituents. The initiative began with a research study to fulfil the knowledge component of this platform and mobilise technology cooperation and investment facilitation by bringing in businesses, business associations and policymakers.

The *ERIA CII ISID Study on India–Japan Economic Partnership for Resilient and Diversified Value Chains* builds on the 2023 Group of Twenty (G20) Leaders' Declaration and the Group of Seven (G7) Leaders' Statement, which emphasised the need for resilient, diversified, trustworthy, and transparent supply chains amongst developing and developed economies. The G20 leaders adopted a framework for keeping critical GVCs resilient and robust. Analysis of data, collaboration, coordination, preparedness, and inclusion and sustainability are some of the high-level principles adopted by the G20 that can guide like-minded countries towards resilient and reliable supply chains. The India G20 Presidency also brought into focus the role of the Global South in the new supply chains of goods and the digital economy. The G7 Hiroshima Leaders' Communique reached out to emerging and developing countries in Asia – which are the key players in global supply chains and the key stakeholders in a rules-based trading system with fair and transparent markets. The ASEAN Community and India are two significant members of developing Asia that have both the capacity and quality to fulfil the drive towards resilient and trustworthy supply chains amongst G7 and non-G7 members. India–Japan cooperation with ASEAN and Australia is an important component for manufacturing and critical mineral supply chains, and is the basis for this analysis of regional and global value chains and economic security issues.

This study is a ready reckoner for businesses, policymakers, and academics to understand the basic principles of global or regional value chains; their distribution, density, and the resultant efficacy in the Indo-Pacific region; and the competition between established and diversified GVCs for economic and strategic security. Trade and GVC integration data are cited to support the current GVC scenarios in the region, and investment data for GVC infrastructure support the policy prognosis on diversified and resilient GVCs, as well as the direction of economic security and strategic cooperation in the Indo-Pacific region. The study also assesses the current policy deficits in the global trading regime, especially those emanating from the United States (US) and uncertainties in global trade governance systems.

Chapter 1 assesses the current state of global supply chains in terms of their concentration – and much-needed diversification. It reviews the opportunities and challenges in the India–Japan economic partnership in this context, and recommends a

policy agenda for harnessing its potential. The chapter also discusses the extent of concentration of global supply chains, the global trend of diversification, and the advantages of India in rebuilding supply chains.

It summarises the steady deepening of the India–Japan strategic partnership and shows how the bilateral economic partnership has yet to fulfil the potential of the close political engagement between the two countries.

The chapter provides an overview of the global supply chains of traditional and sunrise industries that have come to be dominated by China. Amongst labour-intensive industries, China dominates global manufacturing with a 70% share. In green sunrise sectors, China's domination is even more complete, with over 80% of all stages of solar photovoltaic (PV) panel manufacturing, 76% of lithium-ion batteries, 60% of global wind turbine capacity, and 62% of global electric vehicle (EV) production. China also accounts for 75% of the global output of mobile phones, smartphones, and laptops; and holds a dominant position in the global critical minerals supply chain, processing over 85% of the world's rare earths.

Several leading industrialised countries, including the US and European Union (EU) Member States, are pursuing industrial policies to enhance supply chain resilience through onshoring/friend-shoring. In the US, industrial policy has become the 'New Washington Consensus' – a bipartisan consensus for pursuing aggressive economic nationalism while prioritising strategic industrial policy. This shift marks a significant departure from the Washington Consensus of the late 1980s, which emphasised globalisation, deregulation, and the virtues of free markets. The Trump administration 2.0 is taking this approach to new levels to rebuild domestic manufacturing capabilities.

The EU has followed up with its own industrial policy initiatives such as the Green Deal Industrial Plan for the Net-Zero Age; the Critical Raw Materials Act, 2023; and the European Battery Alliance, a collaborative network promoting battery research and subsidised manufacturing across Europe. The EU adopted the Carbon Border Adjustment Mechanism in December 2022 to support its climate goals, but it has been widely criticised as unilateral, protectionist, and discriminatory – adopted to protect domestic industries. The EU has also followed the US in imposing additional tariffs on imports of EVs from China.

Japan launched the US$2 billion Supply Chain Diversification Programme in 2020 to help Japanese companies diversify and reduce their dependence on China by providing subsidies that incentivise companies to onshore or reshore their operations to friendly countries in ASEAN. In the second phase, India and Bangladesh were added to the list of countries eligible for reshoring incentives. Japan's Economic Security Promotion Act, 2022 aims to enhance the resilience of supply chains. Under the Supply Chain Diversification Programme, incentives have been provided to several companies to reshore manufacturing projects – mainly in Viet Nam, but also in Indonesia, Malaysia, Thailand, and India.

In this context, India–Japan supply chain networks and investments are entering a significant phase where opportunities abound for both countries. However, despite their historical and economic linkages, India–Japan relations have not realised their full potential.

Advantage India

India offers several advantages to global industries, especially those from Japan, in terms of building alternative supply chains and making the country an important new manufacturing hub.

It offers a large and fast-growing domestic market, with robust growth of around 6.5% during 2015–2025. India's relatively young population, with a median age of 28 years, is a demographic dividend both for the country and investors. This contrasts with rapidly ageing populations in most industrialised countries, such as Japan and European countries, as well as newly industrialised countries, such as the Republic of Korea (henceforth, Korea) and China. India offers a geopolitical advantage in the ongoing industrial restructuring of global supply chains to reduce heavy dependence on one source – China. India enjoys a geopolitical advantage in attracting this supply chain restructuring, given its friendly relations with major industrialised countries in both the West and the East, including free trade agreements or comprehensive economic partnership agreements (CEPAs) with Japan, Korea, Australia, ASEAN, the United Arab Emirates, the European Free Trade Association (EFTA) countries, and the agreement concluded with the United Kingdom in July 2025, amongst others, as well as ongoing negotiations with the EU and the US. The emergence of India as the second-largest player in mobile phone assembly, with Apple and Samsung locating their assembly lines in the country, reflects the potential of positioning itself as an alternative supply chain destination.

India's information and communication technology (ICT) software and chip design capabilities are yet another advantage for Indian manufacturing and to build an ecosystem for electronics and semiconductors. The start-up ecosystem and technology-driven entrepreneurship complement these capabilities. These advantages are seamlessly supplemented with improved logistics infrastructure and industrial corridors for industrialisation. This includes cross-border economic corridors to enhance trade amongst India, Southeast Asia, West Asia, and Europe. A revamped Special Economic Zone (SEZ) programme with distinct economic regulations is an important component of India's industrialisation programme. The Make in India programme brings the focus back on building manufacturing capacities.

India–Japan Ties Are Stable and Special

Since 2005, India and Japan have held annual prime ministerial summits. In 2006, during the visit to Japan of Prime Minister Manmohan Singh, the bilateral relationship was

elevated to a Global and Strategic Partnership. The India–Japan CEPA was signed in 2011 and has been in force since then. In 2014, during the visit of Prime Minister Narendra Modi to Japan, the two countries agreed to upgrade their relationship to a Special Strategic and Global Partnership. In 2015, during Prime Minister Shinzo Abe's visit to New Delhi, the two prime ministers resolved to transform the India–Japan Special Strategic and Global Partnership into a deep, broad-based, and action-oriented partnership, reflecting the broad convergence of their long-term political, economic, and strategic goals towards peace and prosperity in the Indo-Pacific region and the world. In 2022, during the visit of Prime Minister Fumio Kishida to India, the two countries formulated a roadmap for the India–Japan Industrial Competitiveness Partnership (IJICP) and launched the India–Japan Clean Energy Partnership. Besides bilateral engagement at the leaders' level, India and Japan have 2+2 Ministerial Dialogues with ministers of foreign affairs and defence from both countries. In addition, they set up the India–Japan Act East Forum. India and Japan are also members of the Quadrilateral Security Dialogue (Quad), which comprises four countries: Australia, India, Japan, and the US. The Quad's primary goal is to foster a free, open, and prosperous Indo-Pacific region by collaborating on issues like security, trade, and disaster relief.

The India–Japan CEPA is one of the most comprehensive such agreements signed by India, covering trade in goods, services, the movement of natural persons, intellectual property, government procurement, competition, the business environment, and cooperation. It has been in force since 2011 and targeted the abolition of tariffs on 94% of items over 10 years.

Potential Gap Needs to Be Addressed

The deepening of India–Japan political and strategic engagement in bilateral, regional, and multilateral forums, however, has not resulted in a deepening of economic partnership. India's bilateral trade expanded from US$15 billion–US$16 billion per year in 2013–14 to around US$22 billion in 2023–24. However, the growth largely represents rising imports to India from Japan, up from around US$9 billion–US$10 billion in 2013–14 to around US$17 billion in 2023–24. India's exports to Japan have fallen in absolute terms from around US$6 billion per year in 2013–14 to US$5 billion a decade later. The trade deficit widened from US$2.67 billion in 2013–14 to US$12.54 billion in 2023–24. Japan's share in India's total imports of electronic products as well as automobiles has fallen, while the share of China, ASEAN, and Korea has risen.

Amongst the Indian products that benefited from the CEPA are fish items including shrimps and fish meat, organic chemicals, ferroalloys, dyes and pigments, woven garments, and castor oil. However, the CEPA did not help in enhancing India's exports of garments, footwear, and leather products due to the regulatory factors applicable in Japan. Article 13 of the CEPA on Economic Cooperation was not leveraged adequately for improving product quality and the ability of Indian exporters to comply with Japanese

market specifications and standards. The potential for mutually beneficial trade between India and Japan, especially for India's exports, remains untapped despite a functional India–Japan CEPA, especially for labour-intensive products such as textiles and garments, leather goods and footwear, processed foods, gems and jewellery, furniture, and toys, amongst others, which Japan imports in very large quantities from China and Viet Nam. The trend of reshoring of supply chains by Japanese companies to India is not evident despite the growing stature of the bilateral partnership, a functional CEPA, India's large and expanding market and skilled workforce, improving infrastructure and ease of doing business, and incentives offered by the Japanese and Indian governments.

Japan has been an important source of foreign direct investment (FDI) inflows globally and to India. It has been the fifth largest source of FDI to India, bringing in $43 billion between 2000 and 2024. Japan's share in India's total FDI of US$667 billion received during the same period is 6.4%. Although Japan's share of FDI in India, at 6%, is higher than its share in India's trade, it remains below potential given Japan's position as a major global source of FDI.

The size of Japanese FDI inflows is surpassed by some Japanese companies, which have made India an important part of their GVCs. Suzuki Motor Corporation's Indian subsidiary, Maruti Suzuki India Limited, is a crucial part of the company's global operations, serving as a major production and export hub, especially for passenger vehicles, with cumulative production exceeding 30 million vehicles. Similarly, Toyota's India operations are a vital part of its global strategy.

India could be an important base for the supply chain reshoring of Japanese companies, given the deepening strategic engagement of the two governments, their shared democratic values, and complementary demographics, specialisation, and resources.

The potential of India–Japan economic partnership for supply chain restructuring requires some important interventions:

- Create an India-focused dedicated fund to support Japanese FDI in India under the Supply Chain Diversification Programme: Although investments in India are eligible for support under the US$2 billion Supply Chain Diversification Programme, the bulk of the funding has gone to support investment projects in Viet Nam and other ASEAN Member States (AMS). A separate India-focused fund of US$2 billion could be earmarked to incentivise Japanese investments in India for (i) labour-intensive industries (e.g. textiles and garments, footwear, toys, food processing, and furniture); and (ii) sunrise sectors (e.g. electronics and semiconductors, solar PV, advanced batteries, EVs, electrolysers, wind turbines, machine tools, machinery, shipbuilding, and other heavy industries).

- Review of India–Japan CEPA to make it effective: The India–Japan CEPA requires a review in consultation with businesses in both countries to identify the non-tariff and process-oriented barriers that Indian exporters face in exporting labour-intensive goods to Japan, and to recommend the need for capacity building, especially of micro, small, and medium-sized enterprises (MSMEs), to comply with those standards.
- Targeting of Japanese companies by Indian investment promotion agencies: Invest India should tap Japanese multinational companies that specialise in India's priority sectors but do not yet have operations in India. Retail giants such as Daiso could help to develop a vendor base of Indian MSMEs, helping them to integrate into global supply chains.
- Fostering policy research on India–Japan supply chain restructuring: The criticality of supply chain diversification, especially in the context of the global trade policy uncertainties, requires sustained efforts aimed at understanding the emerging opportunities and highlighting the policy measures to realise them in a mutually beneficial manner. The creation of centres of advanced policy research on India–Japan economic partnership and supply chain resilience in India and Japan are the way forward.

Supply chain resilience is critical in the context of India–Japan economic partnership through the creation of alternative supply chains by leveraging their complementary strengths and synergies. This also contributes to India's economic development and the creation of decent jobs for its youthful workforce.

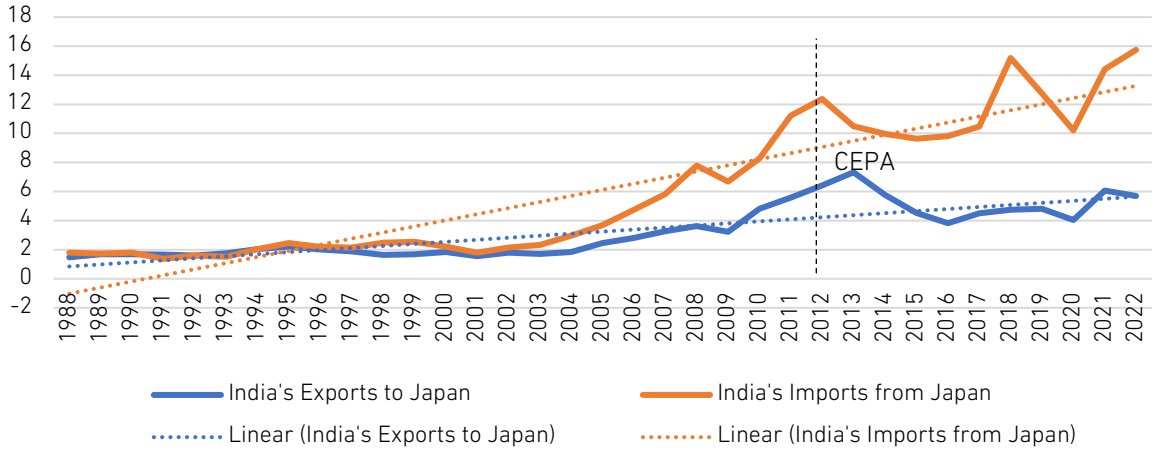
Chapter 2 explores the potential of India–Japan trade relations in a way that both partners complement each other's sectoral advantages and reap shared benefits. Trade opportunities are discussed in the framework of promoting India's participation in GVCs with Japan, which is critical for promoting a trade balance between the partners on a sustainable basis. Since the signing of the CEPA, India's imports from Japan increased at a reasonably good pace. Many of the imports from Japan, however, were intermediate goods (followed by capital goods), which could have directly and indirectly influenced India's higher participation in GVCs, thereby promoting its manufacturing capabilities, increasing gross domestic product and job creation, and unlocking its export potential. India has increasingly been both importing and exporting intermediate goods to Japan, and this needs to be expanded to foster GVC linkages. On India's exports front, capital goods have a share below 20%, which must be enhanced for India to move up and lead at upper ends in GVCs. Imports of capital goods are a good proxy indicator for promoting rapid economic development, especially when a country is at the lower stages.

Trade relations between India and Japan should be viewed in the context of their global participation, where they are important players. In 2022, India's global trade was $1.2 trillion whereas that of Japan was $1.6 trillion. Since 1988, India's exports and imports from Japan had been around the same level and largely remained stagnant until around 2001. Once India's global trade started picking up post-2001, its imports grew much faster

than its exports to Japan and the gap has continued to widen over the years. In 2022, India imported around three times more than its exports to Japan.

Another notable trend is that trade between the two countries started to pick up a few years prior to the signing of the CEPA in 2011. There is not much evidence to show that the CEPA has been particularly successful in bringing about incremental change in bilateral trade, at least from India's point of view. This is also evident because India's exports to Japan as a share of its global exports have assumed a sharp declining trend in the post-CEPA years (Figure 1).

Figure 1: Bilateral Trade Between India and Japan
(US$ billion)



CEPA = Comprehensive Economic Partnership Agreement.
Source: World Bank (n.d.).

GVC Participation

Intermediate goods, followed by capital goods, are an important part of imports from Japan. India has increasingly been both importing and exporting intermediate goods to Japan, and this needs to be expanded to foster GVCs linkages.

The GVC participation indexes for India and Japan for 2020 have been estimated at the sectoral as well as aggregate levels. India's participation in GVCs through backward linkages is estimated to be 17.2%, higher than the corresponding values of Japan (13.3%) and Australia (9.4%) but lower than the value of ASEAN (30.9%). India must continue to strengthen its backward linkages as it is found to be especially useful for developing countries in promoting exports, domestic value added, and employment.

India's manufacturing sector shows strong backward linkages of 27.0%, much better than those of Australia (14.1%) and Japan (16.8%). However, the forward linkages cause concern. Their value is only 9.5% compared with 21.0% for Australia, 18.8% for Japan, and 10.6% for ASEAN. This indicates the need for a great deal of effort towards promoting its exports of intermediate goods to be better connected in GVCs.

India's GVC performance in the service sector is comparable to Australia and Japan in both backward and forward linkages, reflecting its competitive strength in information technology (IT) and business process outsourcing sectors. The country's forward linkages and backward linkages in services were 7.1% for IT and 8.2% for business process outsourcing. ASEAN's superior integration in backward linkages, at 27.7%, could be taken as a benchmark for India to aspire to, especially given the growth of Global Capability Centres in the country.

India and Japan are well positioned to emerge as pivotal players in the global economy, leveraging their complementary strengths through strategic partnerships. To enhance trade cooperation further, the following measures are suggested:

- Diversification of trade baskets
- Addressing India's unfavourable trade balance
- Addressing key non-tariff barriers
- Enhancing trade facilitation
- Simplifying rules of origin
- Using FDI for export growth
- Economic and technical cooperation in manufacturing
- Developing intra-regional supply chains
- Collaboration with local firms

India and Japan must now focus on leveraging their economic complementarities more strategically, transforming their trade relationship into a more balanced and forward-looking partnership. With continued collaboration in technology, innovation, and supply chain resilience, the two countries can redefine their bilateral trade trajectory in a way that it is mutually beneficial to both the partners.

ASEAN: An Important Link in GVCs and Investments in India

India's weight in the global economy has expanded rapidly, from 1.5% in 2002 to 3.5% in 2022. This growth is mostly driven by domestic demand. Exports have stagnated, with the share of global merchandise exports remaining as low as 1.8%. India could tap into huge external demand if it can increase its international competitiveness and integrate more into global supply chains.

Chapter 3 reviews the GVC performance and integration of India and Japan, both regionally and bilaterally. However, India–Japan supply chain linkages must also include linkages with ASEAN, which is a major manufacturing and investment destination for Japan and other large economies such as China, Korea, the EU, and the US. Data on such

GVC participation have been analysed to filter the exports and imports of intermediate goods, which feed other countries' exports. The focus on trade in intermediate goods allows us to count the value added embedded in exports of the reporting country/region and elucidates the degree of integration in the value chains of trading partners. The findings show the trajectory of India's GVC participation, where India has been gaining ground and adding more value to GVCs, and its reliance on foreign value added has also significantly dropped thanks to continuous FDI inflows that have bolstered the domestic supply chains.

Japan promoted the original equipment manufacturer (OEM) revolution in Southeast and East Asia. The competitiveness of ASEAN's exports and its manufacturing prowess are largely due to the early FDI from Japan in AMS during the 1970s and 1980s, particularly in Thailand and Indonesia, and later in Viet Nam for the automobile and electronics industries. Japan's investments in India, however, have only recently seen an upswing in the manufacturing sector (as reported in Chapter 1). With Japan ranking fifth amongst the source countries for FDI and accounting for 6% of total FDI in India, Japanese FDI in India has mainly been in the electrical equipment, general machinery, chemical and pharmaceutical, financial and insurance, construction, transportation, wholesale and retail, and services sectors. On the other hand, ASEAN has been consistent in GVC participation but with huge dependence on China for both exports and imports, with more dependence on imports from China or backward participation in the GVC vis-à-vis China.

India has improved its GVC participation in several industries, such as chemicals, pharmaceuticals, machinery, and automobile parts and engines. India has also made much progress in global service value chains, especially in the ICT sector, in which India now creates 7% of global value added, only behind China in emerging markets.

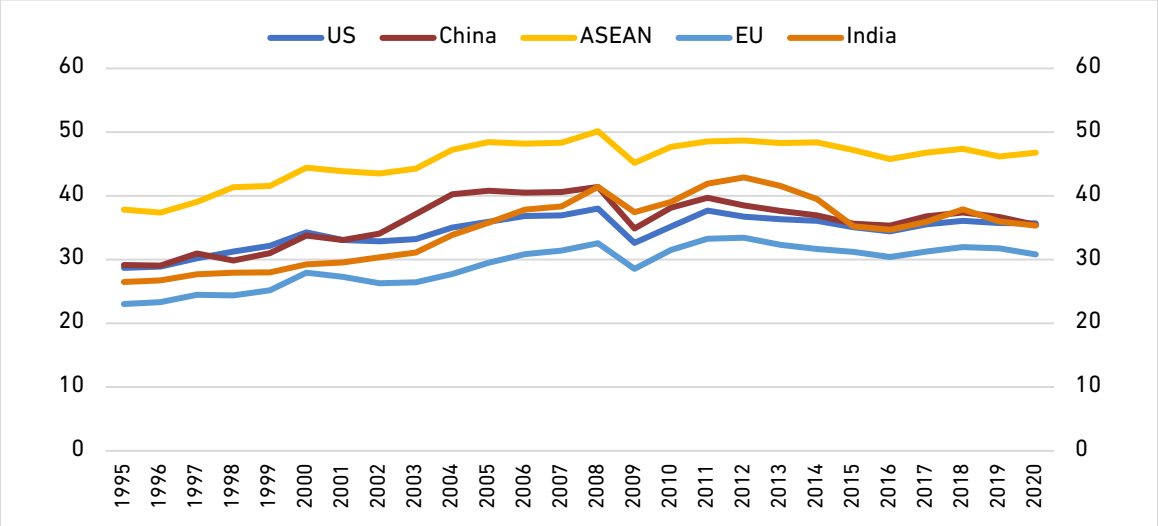
India is expected to continue its rise in GVCs, with its promising demography and the prevailing de-risking strategies in major economies regarding China. ASEAN too has an opportunity to consider structural adjustments and corrections in its GVC map, with greater integration with India and Japan than before. The review of the ASEAN–India Trade in Goods Agreement presents an important opportunity for reducing barriers to trade with ASEAN and greater integration with ASEAN both in trade and FDI. In an increasingly protectionist world, regional and trans-regional trade deals are increasingly important means for improved trade relations and supply chain integration.

Global Developments in GVCs

Globally, the size of GVCs peaked in 2008. Globalisation trends have recently halted, if not started reversing. Important members of the Indo-Pacific, such as Australia, India, Japan, the US, and the EU, have seen moderate improvements in GVC participation since 2016. For AMS, many of which are now members of the Regional Comprehensive Economic Partnership (RCEP), the Indo-Pacific Economic Framework for Prosperity (IPEF), and the

Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), the trend is similar, but their level of integration into GVCs is much higher than for several other Indo-Pacific countries, including India (Figure 2).

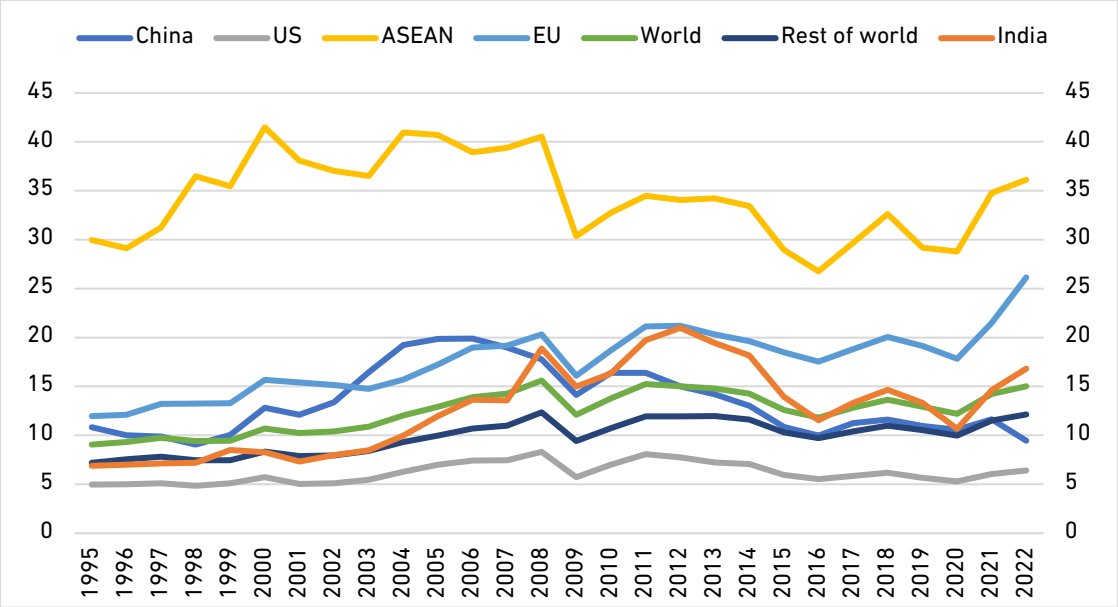
Figure 2: Total Global Value Chain Participation with the World
(% of gross exports)



ASEAN = Association of Southeast Asian Nations, EU = European Union, US = United States.
Source: OECD (2023), Trade in Value Added (TiVA) database. https://www.oecd.org/en/topics/sub-issues/trade-in-value-added.html (4 July 2024).

Since the global financial crisis, the imports of intermediate goods as a share of gross domestic product (GDP) have slowed for major exporters, especially in emerging markets such as China, India, and ASEAN. The share of intermediate goods imports, however, has been rising again in some countries and regions since the coronavirus disease (COVID-19) pandemic began, such as in India, ASEAN, and the EU (Figure 3).

Figure 3: Imports of Intermediate Goods
(% of GDP)



ASEAN = Association of Southeast Asian Nations, EU = European Union, GDP = gross domestic product, US = United States.
Source: UNCTAD (2024), Merchandise: Total Trade Growth Rates, Annual. https://unctadstat.unctad.org/datacentre/dataviewer/US.TradeMerchGR (accessed 4 July 2024).

India, Japan, and ASEAN GVC Integration Performance

While Japan and ASEAN are better integrated into the regional and global value chains, India has since been rising in terms of integration into the global value chain. The integration has been asymmetric, though. India's imports of intermediate goods to re-export (backward participation) have gone down, while its exports of intermediate goods for other countries to re-export have increased, including with ASEAN (Figures 4 and 5).

Figure 4: India's Backward Participation by Partner
(% of gross exports)

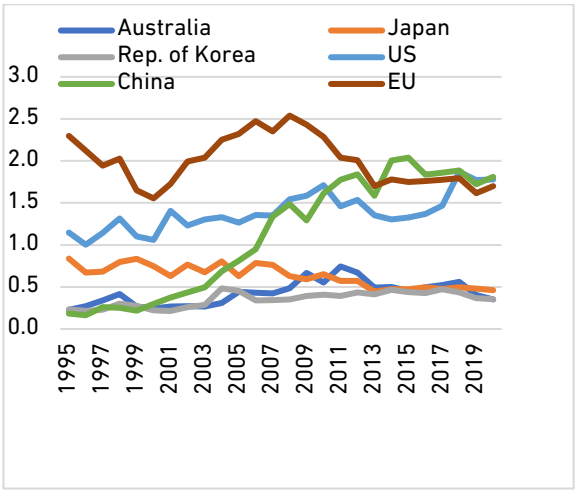
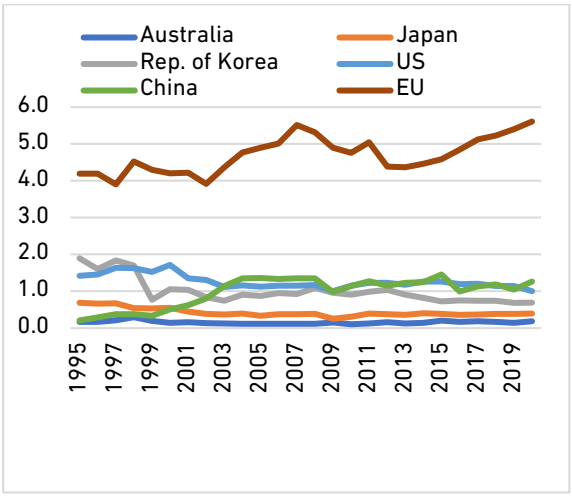


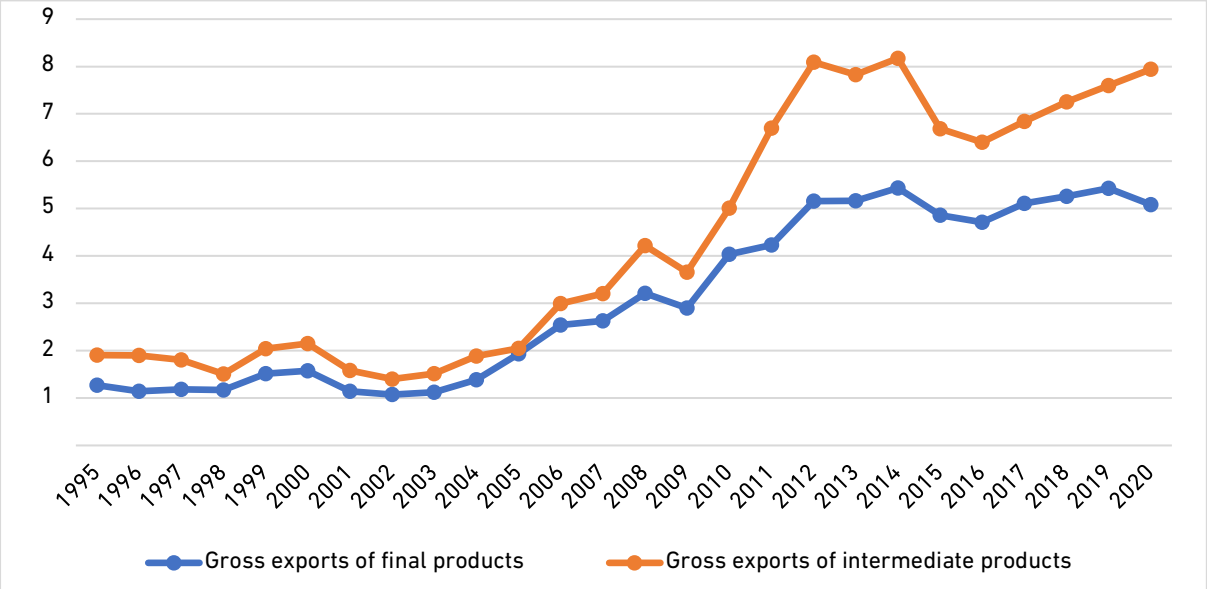
Figure 5: India's Forward Participation by Partner
(% of gross exports)



ASEAN = Association of Southeast Asian Nations, EU = European Union, US = United States.
Source: OECD (2023), Trade in Value Added (TiVA) database. https://www.oecd.org/en/topics/sub-issues/trade-in-value-added.html (accessed 4 July 2024).

India–Japan GVC integration trend is consistent with the above figures. India's exports to Japan are on the rise, both for gross exports of final goods and intermediate goods, which is also explained by India's growing forward participation by partners (Figure 6). India is also sending more intermediate goods to Japan for Japan's exports to third countries (as explained in Chapter 2).

Figure 6: India's Gross Exports to Japan, Final and Intermediate Goods, 1995–2020
(US$ billion)



Source: OECD (2023), Trade in Value Added (TiVA) database. https://www.oecd.org/en/topics/sub-issues/trade-in-value-added.html (accessed 4 July 2024).

The value of Japanese exports of intermediate goods to India in 2020 was US$8.9 billion, only just ahead of India's exports of intermediate goods to Japan (US$7.9 billion) during the same year (Figure 6). Given India's ongoing efforts to grow its manufacturing sector, there is potential for increased investment in the manufacturing sector in India and to support India to grow its backward participation in GVCs – both with Japan and other manufacturing hubs in ASEAN.

Amongst the reported manufacturing industries, India's exports of final products to Japan are more varied than Japan's exports of final products to India. India sends finished petroleum, food, textiles, electronics, and machinery products. Japan's exports of final products to India are dominated by three industries – automobiles, electronics, and machinery – and to some degree chemicals.

During the same period, ASEAN has consolidated its position in the GVC, albeit with huge dependence on manufacturing in China. ASEAN integration with large, developed economies has declined since its peak in the late 2000s. ASEAN has become increasingly integrated with China, which has become the main individual partner in GVCs. Its integration with India has also grown during the same period, but the 'China centrality' in GVCs is remarkable. ASEAN's integration with the US and Japan has seen a steady negative trend since its peak in the late 2000s. In contrast, a partial recovery has taken place since 2015 with respect to the EU, which remains the main GVC partner for ASEAN amongst developed economies.

On a structural basis, the GVC integration of ASEAN with other economies is predominantly in backward participation, i.e. importing foreign products that are incorporated into ASEAN exports. The share of foreign value added in gross exports – or backward integration – accounts for almost two-thirds of ASEAN participation in GVCs, stressing its global upstream position as final exporter.

This contrasts with the declining share of domestic value added in foreign exports – or forward integration – in the US and Japan. The nature of bilateral integration has changed over time, positioning ASEAN more upstream with respect to the EU and downstream with respect to China, accounting for greater participation of Chinese inputs in ASEAN exports.

India–ASEAN GVC Integration is Crucial for Participating in Japan's Manufacturing Industries

ASEAN's manufacturing sector attracted the largest share of intra-ASEAN FDI, at around 33% of total FDI, followed by real estate and financial and insurance activities. On the other hand, top FDI flows from outside ASEAN (the US) primarily went to financial and insurance; professional, scientific, and technical; and manufacturing activities. FDI flows from the EU were similarly directed towards financial and insurance, wholesale and retail, and manufacturing activities. Chinese investors in ASEAN have also invested significantly in manufacturing, wholesale and retail, and real estate activities. These trends highlight

the diverse priorities and economic interests of investors from different regions, shaping the economic dynamics within ASEAN. Japan was the leading investor in the manufacturing industries in ASEAN in 2023, with 15,887 Japanese firms present in ASEAN, of which about two-thirds were manufacturing firms. As such, India's GVC integration with manufacturing firms in ASEAN is significant both for India–ASEAN trade and investment and India–Japan supply chain linkages.

From 2010 to 2020, India's GVC integration with ASEAN increased the most – by 1.3% of its gross exports – followed by 0.3% with China and the EU. Growing FDI between ASEAN and India should contribute to enhancing supply chain linkages between the two partners. The increased FDI should be reflected in manufacturing, rather than services, as is mostly the case now. In 2020, India ranked higher in GVCs than ASEAN, meaning that India exported more value added to the world. The rise of India–ASEAN GVC integration has been predominantly driven by forward integration with Singapore and to a lesser extent Viet Nam. Meanwhile, India's backward participation with ASEAN has dropped significantly since 2006, as India seeks to diversify its imports of raw materials.

FDI is the Key to Competitiveness

The growth of India's forward GVC participation in the manufacturing sectors remains sluggish due to the low FDI, however, compared with ASEAN.

The FDI received by India has been on the rise for many manufacturing sectors (e.g. the automobile, pharmaceutical, renewables, and electrical and electronics sectors), with most of it going to the digital sector. Comparatively, ASEAN received FDI of $9.5 billion for its electronics industry in 2022, which is in stark contrast to India's $539 million. Although India receives higher inflows in absolute value compared with individual AMS, together AMS outnumber India by more than two times. AMS have been receiving more FDI than India, especially from China, Japan, and Korea. India's FDI mainly comes from ASEAN, the EU, and increasingly the US. India's manufacturing value added outweighs services, but increasing the share will require transforming the demographic advantage in manufacturing through professional training, investments, and scaling up high-skill manufacturing. This could be achieved by increased policy negotiations on tariffs and non-tariff measures that slow down India's competitiveness and attractiveness as an investment destination.

India has been growing since the early 2000s and re-accelerated in recent years in exporting car parts (Harmonised System (HS) code 87), machinery (HS code 84), electrical and electronic parts and components (HS code 85), and transport equipment other than cars (HS code 88). It is important for India to gain traction in these products since they require higher production technology and thus carry higher value added compared with labour-intensive goods. During the rise of these industries in India, overseas demand from ASEAN helped significantly as India shipped as much as 25% of total orders for these

products to ASEAN. This remarkable growth in exports of goods from HS code 84 to 90 has seen an overall drop in exports to ASEAN since 2014. The growth in exports to Japan has increased marginally year on year. The scope for increased investment in production and supply chains therefore remain immense.

Meanwhile, ICT services remain India's most valuable sector in service exports, and its contribution of 7% of global value added in ICT is only lower than that of China (11%) amongst all emerging markets. Transportation and storage, wholesale and retail trading, and financial and professional services are also gaining traction thanks to the push of an uptick in FDI inflows. Therefore, increased attention to the services component of trade will be important for the review of India–Japan investments.

India–Japan–ASEAN Supply Chains for Green and Digital Trade

Green and digital trade is an emerging area of concern for all trading nations, as evidenced by the increasing inclusion of chapters and provisions dealing with these areas in free trade agreements, as well as their incorporation in work by the major multilateral agencies concerned with trade, e.g. through a concern with the links between trade and climate change, or the implications of digital transformation for trade and development.

Against this background, the role of green and digital trade in the India–Japan supply chains and investment is very important, making this partnership facilitate the supply chain linkages and increased trade in environmentally friendly products, as well as digital products. Producing green and digital goods and promoting critical mineral supply chains between India and Japan, and with other partners such as ASEAN and Australia, which are important upstream and downstream contributors, is the recommended strategy.

How does India–Japan bilateral trade feature green and digital goods, and the supply chain of components for manufacturing such goods? What sorts of policy changes could facilitate future growth in trade? These questions will need to be addressed if the India–Japan supply chain and investment plan is made fit for future trade.

Identifying Select Goods for the India–Japan–ASEAN–Australia Supply Chain

Green and digital goods are not a recognised part of any product or industry classification used in international settings, using existing HS code classification systems.

This supply chain could start by identifying low-carbon technology goods, whose development has been mainly led by high-income countries, but there is an urgent need for diffusion to low- and middle-income countries in the context of the Paris Agreement and the global commitment to achieve net zero carbon dioxide emissions by 2050.

The second cluster is environmental goods. This group refers to products that have significant potential to improve environmental conditions in a variety of ways.

The third cluster is the lithium-ion battery supply chain. The rationale for choosing this cluster is that lithium-ion batteries are crucial to many green applications, including EVs and renewable energy storage. This cluster is also important for the strategic partnership among India, Japan, ASEAN, and Australia in the larger context of cooperation for resilient and diversified GVCs in the Indo-Pacific region.

Amongst digital goods, there is benefit in focusing on emerging and new technologies, as well as goods that are important for supply chains. Semiconductors (HS 2017 codes 8541 and 8542) are important in emerging digital supply chains.

There are intensive inter-industry exchanges between India and ASEAN in the green and digital space, which is consistent with trade complementarities between the two, as evident from trade in semiconductors and lithium-ion batteries, which are important inputs into some environmental goods. Over time, ASEAN's exports are becoming more oriented towards semiconductors, and to some extent lithium-ion batteries.

India has major investment needs in renewable energy and is developing the capacity to be an important player in that sector in the region and potentially beyond. India, Japan, and ASEAN must initiate more collaboration in this area, which has important synergies with the development of regional manufacturing capacity in lithium-ion batteries, EVs, semiconductors, and other goods pertaining to the digital and green economy.

India is expected to continue its rise in the GVCs, with its promising demography and the global de-risking strategies regarding China. To make the most of these opportunities, India will need to relax its tariffs and non-tariff measures further (to assess if the domestic producers of intermediate goods can still compete with producers outside India) and push forward more trade and investment deals to attract more FDI inflows to improve its domestic manufacturing industries.

ASEAN's huge dependency on Chinese inputs in ASEAN's exports has supported the competitiveness of its exports. However, the current turnaround in trade policies in large developed markets like the US and the EU, which favour diversified and resilient supply chains, and the emergence of new production centres in India, South Asia, West Asia, and Africa, may be a new opportunity for ASEAN to diversify its trade linkages. This may be especially important in the emergent digital and green economy, where the technology and supply chains of environmental and digital goods will be closely monitored by ASEAN's important trading partners.

For India, given its low backward participation, both with ASEAN and the rest of the world, it reduces India's dependence on the rest of the world and increases self-reliance while promoting domestic companies. But it increases the costs of intermediated goods into domestic products (as it is mostly a consequence of high tariffs on imports and other trade-related barriers to imports). For a sustainable future of manufacturing in India and

for increased exports, import tariffs will need to be reduced to assess if the domestic producers of intermediate goods can still compete with producers outside India. This is the point where Japan's GVC integration with India will grow.

The key to deeper GVC integration and better quality of trade will lie in more bilateral FDI between India and Japan. Finding complementarities in manufacturing and the digital economy, including capacity enhancement, is the way forward for India and Japan to deepen their economic relations.

Economic Security and GVC Restructuring in Japan

Chapter 4 explains the GVC restructuring policies and incentives in Japan with the backdrop of resilient supply chains and how these will benefit Japanese investments in India.

GVCs were developed and expanded to take advantage of differences in factor endowments as labour-intensive production processes were relocated from advanced economies to developing economies endowed with abundant labour. The rationale that drove the process was mainly 'efficiency'. The situation has been changing since the trade conflicts between the US and China triggered by the first Trump administration. The tariff muddle in Trump 2.0 continues. To mitigate the negative impacts of these conflicts, private companies were effectively urged to reduce their dependence on China with support from their respective governments. This process, known as decoupling or de-risking, has been accelerated globally by rising geopolitical risks. Under such circumstances, GVC restructuring has been ongoing – driven by resiliency instead of efficiency.

In general, the deeper a country is integrated into GVCs, the more vulnerable it is to external shocks. While natural disasters or pandemics are contingent shocks, the recent rise in geopolitical risks is largely recognised as a structural shock for which we cannot expect a return to normal in a short period. Countries have therefore employed industrial policies to enhance resiliency instead of competitiveness by reducing dependency through reshoring, friend-shoring, developing new technologies, and so on. The semiconductor sector is a good example, where the wave of industrial policy was triggered by China's Integrated Circuit Industry Investment Fund, known as 'the Big Fund', in 2014 (followed by re-funding in 2019 and the third phase in May 2024) as its strategic effort to achieve self-sufficiency in semiconductor production and reduce reliance on foreign technology. The US enacted the CHIPS and Science Act in 2022 to bolster domestic manufacturing and research and development (R&D) in the semiconductor industry using subsidies and tax exemptions, and even restricting investment in countries of concern, i.e. China. The EU followed with the European Chips Act on 21 September 2023 to strengthen the semiconductor ecosystem in Europe through fiscal support and various incentive and facilitation measures.

A historically poor rice harvest in 1993 due to cold weather and the Great East Japan Earthquake in 2011 and supply chain disruptions urged Japanese firms to pay more attention to risks in their supply chain management by diversifying sources of inputs, markets, and trade routes. The Fukushima Daiichi Nuclear Power Plant incident drastically changed Japan's energy policy. The recent rise in geopolitical risks is regarded as a major external shock requiring Japan to embark on structural changes to review the balance between efficiency and risk in GVCs.

The 'Recommendations Toward Developing Japan's "Economic Security Strategy"', released on 16 December 2020, identified 16 priority issues including securing resources and energy, developing financial infrastructure, reinforcing cybersecurity, diversifying and strengthening supply chains, and achieving and maintaining Japan's technological excellence. The twin concepts of 'strategic autonomy', meaning that Japan should avoid excessive dependence on other countries and 'strategic indispensability', which urges Japan to strategically increase the number of sectors where Japan is indispensable to the international community underpin the Economic Security Strategy. The Economic Security Promotion Act (Act on the Promotion of Ensuring National Security Through Integrated Implementation of Economic Measures; Act No. 43 of 18 May 2022) entered into force on 1 August 2022. The Economic Security Promotion Office was established in the Cabinet Office with a Minister of State for Economic Security in the Cabinet.

The act ensures economic security through integrated implementation of economic measures – ensuring a stable supply of critical products, stable provision of essential infrastructure services, development of specified critical technologies, and non-disclosure of selected patent applications. A stable supply of 12 specified critical products, including fertilisers, magnets, machine tools, semiconductor elements, rechargeable batteries, and critical minerals, is regarded as the main objective of Japan's policy for GVC restructuring. Subsidies have been designed for approved business entities in the forms of direct grants or interest subsidies to financial institutions providing financing to the entities through the agencies in charge of supporting a stable supply of specified critical products.

The Ministry of Economy, Trade and Industry (METI) has also put in place Japan's strategy for semiconductors and the digital industry, including the digital infrastructure, reflecting the rapidly changing global trend, which requires enhanced efforts in the areas of economic security, digital transformation, green transformation, and generative artificial intelligence (AI). The Act on Promotion of Development, Supply and Introduction of Specified Advanced Information and Communication Technology Utilisation Systems (enforced on 1 March 2022) provides subsidies to business entities that plan to expand the domestic production capacity of advanced semiconductors.

Japan–India Economic Cooperation

Bilateral trade between Japan and India has been covered in the previous sections. The structure of Japan's exports to India in terms of HS 2-digit codes, the cumulative shares of the top 3, 5, and 10 items, and the Herfindahl-Hirschman Index (HHI) indicate that the export structure was stable until 2010 but has diversified since then. In terms of traded goods, the share of HS 84 (machinery and mechanical appliances) has been the largest since 2000. HS 85 (electrical machinery and equipment), HS 87 (transport machinery), HS 72 (iron and steel), and HS 74 (copper and articles thereof) have been highly ranked. HS 29 (organic chemicals), HS 28 (inorganic chemicals), HS 39 (plastics), HS 40 (rubber), and HS 90 (optical products) are also important export items to India.

Compared with exports, the structure of imports has shown more dynamic changes. HS 27 (mineral fuels) was highly ranked until 2020, but the share decreased rapidly to 2.0% in 2023 (ranked 12th). Imports of HS 29 (organic chemicals) increased from US$59 million (1.7%, 8th) in 2000 to US$970 million (17.2%, 1st) in 2023. HS 71 (precious metals), HS 72, and HS 62 (apparel) are consistently ranked relatively high.

Japan's FDI in India has been captured in the previous sections. Overall, ASEAN receives three times more Japanese FDI than India, but about half (47.2%) of Japan's FDI to India in 2023 is directed at the manufacturing sector, which includes Suzuki's acquisition of additional shares of its consolidated subsidiary, Maruti Suzuki India Limited. In January 2024, Maruti Suzuki announced the establishment of a new factory in Gujarat, and Suzuki is making investments in India to start the production of India's first battery EV in 2024.

Deepening the Bilateral Relationship

Japan and India have strengthened their bilateral relationship since the beginning of the 21st century. In addition, Prime Minister Shinzo Abe's epoch-making advocacy of the Free and Open Indo-Pacific in the keynote speech at the Sixth Tokyo International Conference on African Development (TICAD VI) in Kenya in August 2016, which asserted the importance of freedom of navigation, open trade routes, and respect for international law in the Indo-Pacific region, led to the restart of the Quad in November 2017. Besides their bilateral summit meetings and deepening bilateral ties, India and Japan have advocated economic security and prosperity in the Quad summit meetings. The next summit meeting will be held in New Delhi in 2025.

One of the visible deliverables of the Special Strategic and Global Partnership established in 2014 was the Japan–India Investment Partnership, under which both parties agreed to develop Japan Industrial Townships (JITs) as integrated industrial parks so that Japanese companies could smoothly establish production sites and operate their businesses – facilitating their investment in India and contributing to policies of India such as 'Make in India'. Since then, 12 JITs have been developed, and 110 Japanese companies are in

operations, construction, land contracts, or contract negotiations in 9 JITs, generating at least ₹150 billion in investment and about 35,000 jobs.

The rapid progress of digital technologies in India led to the establishment of the Japan–India Start-up Initiative during METI Minister Hiroshige Seko's visit to India in May 2018. The scope of bilateral cooperation was expanded in the Japan–India Digital Partnership agreed during Prime Minister Modi's visit to Japan in October 2018 to include collaboration between private firms, human resources in the IT sector, R&D in AI, and next-generation networks. Along this line of cooperation, the Japan–India Fund of Funds was established to mobilise financial resources for start-up businesses in India, aimed at enhancing collaboration amongst Indian companies, which are strong in software, and Japanese companies, which are strong in hardware.

In December 2019, the India–Japan Industrial Competitiveness Partnership (IJICP) was launched under an agreement between the METI Minister Hiroshi Kajiyama and the Minister of Commerce and Industry Piyush Goyal, as a secretary/vice minister-level framework. Under the IJICP, Japan and India have been working jointly to strengthen India's industrial competitiveness and promote bilateral industrial cooperation in areas such as logistics; sharing experiences and best practices on industrial policy; ease of doing business; export competitiveness; resolution of issues faced by Japanese companies operating in India; and issues in primary sectors such as healthcare, education, and agriculture through the use of digital technology.

Building upon existing bilateral cooperation frameworks, such as the Digital Partnership, CEPA, IJICP, and Clean Energy Partnership, the Initiative for Japan–India Industry Co-Creation aims to upgrade the bilateral economic relationship to the next stage by (i) creating future industries through innovation, (ii) evolving existing industries, and (iii) developing new markets. The memorandum of understanding on a Semiconductor Supply Chain Partnership signed by Minister Nishimura and the Minister for Electronics and Information Technology of India Ashwini Vaishnaw is an important part of the bilateral cooperation for the envisaged future industries, together with other cooperation in the areas of start-ups, digital technology, hydrogen and ammonia, and energy-related technologies. Cooperation on existing industries focuses on the steel industry in pursuit of economic growth and decarbonisation, the textile industry to improve quality, and small and medium-sized enterprises for capacity building and investment promotion. Initiatives for new market development include the promotion of Japanese export companies' investment in India, enhancing the export competitiveness of Indian industries, and the promotion of exports to third countries such as those in Africa.

The Supply Chain Resilience Initiative is a trilateral collaboration between Australia, India, and Japan to strengthen supply chains in the Indo-Pacific region by reducing the dependence on China. The initiative was launched in April 2021 in response to the COVID-19 pandemic, which exposed vulnerabilities in global supply chains and led to heavy debts for countries dependent on China.

Resilient GVCs and Critical Minerals Supply Chain: Australia is Important for India and Japan

The goals of the Supply Chain Resilience Initiative are to reduce China's dominance in the critical minerals supply chain and matching buyers and sellers for supply chain diversification.

Minerals like lithium, graphite, and nickel are widely expected to play an increasingly prominent role in global trade. Even under conservative projections, demand for these and other critical minerals will grow robustly, reflecting their importance for green technologies.

A second category of critical minerals constitutes those with applications in semiconductor manufacturing and are also used in solar photovoltaic (PV) technology, thus overlapping with the energy transition minerals. Silicon is a key example, with global trade in high-purity forms reaching US$6.0 billion in 2022. Others like gallium and germanium, which have more niche high-end and military applications, are traded in smaller volumes but feature on Indian, Japanese, and Australian government critical minerals lists.

Against the backdrop of market uncertainties and dependencies, domestic and international initiatives to safeguard critical minerals supplies have proliferated. Governments have employed a wide range of instruments, from regulatory policies to taxes and transfers to trade policies. In some cases, trade has been liberalised to facilitate critical minerals supply, such as India's recent exemption of 25 minerals from customs duties. In other cases, trade has been restricted, including through local content requirements and export curbs.

A critical role for India, Japan, and their regional partners is to resist imposing unilateral barriers and instead invest in institutions that keep markets for these minerals open. This will safeguard the security of supply and the diffusion of emissions-reducing technologies from becoming slower, costlier, and more volatile. Supply, demand, and the relative importance of critical minerals change over longer time horizons due to technological changes. An approach that encourages flexibility, preserves multilateral trade rules and norms, and uses industrial strategies judiciously will be most effective for securing supply into the short and medium term.

Improving the resilience of supply of critical minerals requires more transparent international markets. Since different countries have advantages in different parts of the value chain, there are international synergies. India, Japan, and regional partners have a wealth of forums available that, if used wisely, allow them to coordinate policies and strengthen supply chain resilience.

Production and Distribution of Critical Minerals

Competitive and contestable markets allow the distribution of supply to adapt more easily to changing conditions. Conversely, with high entry barriers, even geographically diversified production would take time to increase production. For example, China's restriction on rare earth exports to Japan in 2010 led to markets for raw rare earths becoming increasingly diverse while more reserves were found. Japan, like most Western countries, now sources a much smaller fraction of its supply from China compared with a decade ago.

For copper, the most ubiquitous critical mineral, the risk that global supply will fall short of energy transition demands is a greater concern than market concentration. Copper refining is more concentrated than mining – with China accounting for about 45% of refined output. India and Japan have footholds in the copper supply chain, where Japan is the third largest refiner by country of ownership and the fifth largest by location. India has substantial new refining capacity coming online, and the International Energy Agency (IEA) expects its global refined copper market share to grow from 2.1% in 2023 to 3.5% in 2035.

The geographical concentration of refining output should be understood in relation to downstream production and consumption. Products with highly concentrated production include refined magnet rare earth elements, gallium, and graphite, with China as the market leader. In 2023, China accounted for nearly 60% of new electric car registrations globally; the US represented only about 10%. Four of the world's top five wind power equipment manufacturers are in China, and in 2023, 97% of the turbines they installed were in their home market.

While spherical graphite is the most concentrated part of the EV supply chain today, its supply is nonetheless diversifying. India also has potential across the graphite value chain. It is a top five natural graphite producer, with 3.1% of global reserves, and Indian companies have produced spherical graphite in trials.

India has an estimated 6.3% of global rare earth element reserves, including neodymium and praseodymium, and Japan has rare expertise in producing rare earth magnets. There are two types of these magnets, bonded and sintered, with the latter used in EV motors and wind turbines. As of 2023, outside China, the only two plants that manufacture sintered magnets at scale are in Japan. There is great rare earth potential in Southeast Asia; Lynas established the world's first refining plant outside China in 2012 in Malaysia. The US Geological Survey estimated that Viet Nam has the world's second-largest rare earth reserves.

Minerals such as lithium face challenges with market responsiveness as the supply of lithium chemicals is relatively concentrated and, in the context of US–China strategic competition, exposed to geopolitical risk. There are plans for additional refining capacity in Australia, China, and Korea. The diversity of the future geographical distribution depends significantly on which battery technologies are adopted most widely. Lithium

reserves were discovered in India in 2023, which could present a significant new supply, though exploration is in its very early stages.

Geopolitical risks in the critical minerals sector will affect different markets in Asia and the Pacific in different ways. Markets for all EV inputs are likely to be significantly shaped by US policy, currently exemplified by the Inflation Reduction Act (IRA) of 2022. To qualify for US EV tax credits, a vehicle must have a minimum amount of its components sourced domestically or from free trade agreement partners. EVs cannot qualify for US subsidies if they contain any battery components manufactured or assembled by a 'foreign entity of concern', including China.

Some analysts expect that a two-tier lithium price will arise, with a premium for IRA-compliant sources. Similar dynamics may be emerging in graphite markets. However, regional price disparities also reflect non-policy factors like distance, and assigning causality to geopolitics to two-tier pricing is not straightforward.

Given the increasingly zero-sum nature of technological competition, the expansion of export controls is a risk to the short-term supply of any mineral concentrated in few countries. India, Japan, and regional partners' best defence against trade policy risks is to support institutions that aim to keep this trade open. Indonesia's ban on exports of nickel ores and concentrates (starting in 2009 but with uneven implementation until around 2020) has precipitated major changes in global markets. Nickel laterite mining and refining has overtaken the traditionally mined sulphide, driven by newer, more emissions-intensive laterite refining technology pioneered by Chinese firms in Indonesia

Over longer periods, export restrictions generate policy uncertainty that discourages investment in new capacity. Most significantly, trade barriers spark retaliation. While curbs on the export of intermediates may assist local downstream producers, these benefits are likely to be eroded if other countries follow suit.

No country, even China, would benefit from critical minerals autarky. If markets become segmented along geopolitical lines, prices will be higher and, on average, supply will be less responsive to shocks. International cooperation is critical to ensure governments can balance national security concerns with the broadly open markets that underpin that security.

An important factor in the ability of critical minerals supply to expand in response to shocks is accurate and timely pricing. Factors influencing price transparency include:

- the presence of markets at both spot and futures prices;
- whether trading is offered on major regulated exchanges; and
- the availability of data on costs, prices, capacities, and stockpiles.

Global price transparency should be explored by governments or industry bodies in producing countries through regulatory means. Key regional partners in this area are China, Australia, and Korea, as current and prospective lithium hydroxide producers, and Indonesia as a major nickel and cobalt supplier. Avenues for dialogue would include improving reporting on costs and quantities and exploring the use of physically settled contracts.

Prices for rare earths and graphite are even less transparent than lithium, as they are not typically traded on traditional commodity exchanges. Information on supply is scarce – governments generally do not publish data on germanium production or reserves, for example. Researchers at the Federation of American Scientists have proposed government-backed auctions and even support for new commodity exchanges as ways to improve transparency.

Recycling capacity, like price transparency, increases the responsiveness of critical minerals supply to shocks. Recycling has outsize benefits for supply chain resilience, growing an extra branch in a supply network that can be leant on when primary supplies run short.

Critical minerals recycling has been highlighted as an area for greater India–Japan cooperation. The India–Japan Clean Energy Partnership, signed in 2022, names recycling as a candidate for future collaboration. In August 2023, Japanese and ASEAN environmental ministers agreed to enhance cooperation on recycling, including on the development of e-waste disposal and collection regulations. Like copper refining, India also has potential to expand its role in global copper recycling.

India, Japan, and regional partners can gain from deeper critical minerals cooperation. They have several avenues for cooperation to enhance the resilience of critical mineral supply chains. Multiple forums and mechanisms have been established for collaboration on critical minerals and related issues such as the Australia–India Critical Minerals Investment Partnership, India–Japan Clean Energy Partnership, US–India Initiative on Critical and Emerging Technology, IPEF, and Australia-Japan-India Supply Chain Resilience Initiative (AJI-SCRI). In addition to these forums, there are non-governmental initiatives. The Quad Investors Network, for example, is a non-governmental project to foster private investment in strategic sectors, launched alongside the May 2023 Quad Leaders' Summit.

A productive agenda for India and Japan to boost critical minerals supply chain resilience could include the following.

- Engage with industry to identify favourable regulatory settings for market transparency.
- Continue to mobilise private investment and coordinate national policies through forums like the Quad.

- Encourage the free flow of skilled labour in midstream refining and processing.
- Support open trade in critical minerals and multilateral solutions to disputes.

India, Japan, and regional partners can build on successes like the Australia–India Economic Cooperation and Trade Agreement to reduce critical minerals trade barriers. Commercial diplomacy can play a productive role, especially where informational barriers and regulatory complexity are high. Above all, a functioning multilateral trade system is the ultimate defence against fragmented, uncertain trade in these critical products. Japan's decision in March 2023 to join the Multi-Party Interim Appeal Arbitration Arrangement was an important step forward in this regard.

In conclusion, India and Japan must now focus on leveraging their economic complementarities more strategically, transforming their trade relationship into a more balanced and forward-looking partnership. With continued collaboration in technology, innovation, and supply chain resilience, the two countries can redefine their bilateral trade trajectory in a way that it is mutually beneficial to both the partners and that takes along important partners like ASEAN and Australia by leveraging the respective cooperation frameworks amongst India, Japan, ASEAN, and Australia as the way forward to realise the potential for resilient supply chains in the region.