



## STRENGTHENING REGIONAL SUPPLY CHAIN RESILIENCY THROUGH THE INDO-PACIFIC ECONOMIC FRAMEWORK (IPEF)

### ABOUT THE AUTHORS

**Han-Koo Yeo** is a non-resident Distinguished Fellow at the Asia Society Policy Institute (ASPI). Prior to joining ASPI, he capped off almost three decades of public service as Trade Minister of the Republic of Korea.

**Wendy Cutler** is Vice President of the Asia Society Policy Institute (ASPI) and Managing Director of the Washington D.C. Office. She joined ASPI after nearly three decades as a negotiator in the Office of the U.S. Trade Representative.

### ABOUT THE ASIA SOCIETY POLICY INSTITUTE

With a solution-oriented mandate, the Asia Society Policy Institute tackles major policy challenges confronting the Asia-Pacific in security, prosperity, sustainability, and the development of common norms and values for the region.

### EXECUTIVE SUMMARY

In recent years, supply chain disruptions have become commonplace, resulting in governments and businesses rethinking long-held strategies, such as “cost and efficiency,” “just-in-time,” and “offshoring.” Facing shortages of products ranging from personal protective equipment (PPE) to automotive semiconductors, governments have had to mobilize quickly to deal with crises, often cobbling together a series of temporary and ad hoc measures. However, it has become clear that no country can prevent or cope with these disruptions alone. A collective approach, especially among like-minded countries, can greatly enhance supply chain resiliency and security.

The Indo-Pacific Economic Framework (IPEF)<sup>1</sup> is one of the most promising international economic negotiations for addressing supply chain issues. Launched by the Biden administration in May 2022, IPEF is a blueprint for U.S. economic engagement in the region with 14 partners representing 40% of global GDP. Of its four pillars, the Supply Chain Pillar has attracted considerable attention. In many ways, this area is a clean slate, paving the way for creative thinking on rules and cooperation mechanisms to minimize disruptions.

IPEF negotiators are making meaningful progress on their supply chain work, with early harvest agreements possibly being announced in late May this year, around the time of the APEC Ministers Responsible for Trade (MRT) meeting in Detroit, Michigan. With this in mind, we recommend a series of proposals to strengthen and expand the work of IPEF, both on a sector-wide basis and on critical minerals and materials, which could serve as a pilot for work in other sectors.

We recommend important elements that should be included in an “early warning system” and “crisis response mechanism” to make these tools as robust and impactful as possible. We also suggest that IPEF members agree to World Trade Organization plus rules to deter the imposition of export restrictions and facilitate customs processing and essential cross-border movement of products and people during times of supply chain shortage. Finally, we underscore the benefits of supply chain connectivity and co-investment opportunities that can be generated through work in this pillar, especially for the developing country members of IPEF.

Regarding critical minerals and materials, we offer several recommendations

<sup>1</sup> IPEF countries include Australia, Brunei, Fiji, India, Indonesia, Japan, Malaysia, New Zealand, Philippines, Republic of Korea, Singapore, Thailand, United States, and Vietnam.

*The Asia Society Policy Institute and the Asia Society take no institutional position on matters of public policy and other issues addressed in the reports and publications they sponsor. All statements of fact and expressions of opinion contained in this paper are the sole responsibility of its authors and may not reflect the views of the organization and its board, staff, and supporters.*



Supply chain disruptions experienced by countries around the world in recent years have highlighted the need to rethink conventional globalization era practices, such as “cost and efficiency,” “just-in-time,” and “off-shoring,” and to find new ways to strengthen economic security and resilience.

to cooperate on supply chain mapping, as well as streamlining and harmonizing regulations and standards. Furthermore, we suggest developing a “swap system” to be drawn from the financial “currency swap” mechanisms as a collective response that encourages countries to share their stockpiles during times of severe supply crises. Finally, we propose that Washington negotiate critical minerals and materials agreements similar to the one recently signed with Japan to make other IPEF members eligible for electric vehicle tax credits under the Inflation Reduction Act.

Our recommended policy proposals will

take time to implement and could be taken up in phases. For 2023, we propose focusing on sector-wide outcomes and starting work on critical minerals and materials, which could continue into 2024. Next year would also be an opportune time to build on the cooperation mechanisms to make them more beneficial and relevant. It may also be worthwhile to consider a market access component to this effort. The IPEF Supply Chain Pillar provides a promising opportunity for the United States and its regional partners to set a new course in reshaping more resilient and secure supply chain networks.

## INTRODUCTION

The world is experiencing once-in-a-generation changes in the global trade and economic environment stemming from the unprecedented pandemic, escalating U.S.-China tensions, the war in Ukraine, accelerating digitalization, and climate change risk. In particular, supply chain disruptions experienced by countries around the world in recent years have highlighted the need to rethink conventional globalization era practices, such as “cost and efficiency,” “just-in-time,” and “off-shoring,” and to find new ways to strengthen economic security and resilience. Businesses are already making adjustments in their supply chains by using dual sourcing, increasing inventory, near-shoring, and regionalizing their supply chains.

However, as citizens and companies in all corners of the world have experienced sharp and unanticipated shortages of critical products, such as personal protective equipment and legacy chips for the automotive sector, we have learned that not only high-tech

manufacturing products but also access to critical raw materials or even any low-end commodity materials could result in serious bottlenecks and choke points with significant impacts on the economy, people, and national security if the supply chain is highly concentrated. No country can be safe from potential supply chain disruptions, nor can it prevent or cope with them on its own. It has become clear that market forces alone cannot solve the problem, and government involvement and international cooperation are needed to develop a new framework for supply chain resilience among like-minded countries.

No other region needs urgent action more than the Indo-Pacific when it comes to addressing supply chain challenges. The region has continued to expand its participation in global value chains, especially in critical manufacturing sectors such as semiconductors, electronics, automobiles, batteries, and electric vehicles, increasing its exposure to possible supply chain disruptions. Moreover, China’s rapid growth as the factory



## The Indo-Pacific Economic Framework (IPEF) Supply Chain Pillar could provide a novel and impactful platform to bring together a diverse range of countries across the Indo-Pacific.

of the world over recent decades has elevated its interconnectedness with adjacent countries in the region, resulting in its becoming the top trading partner for most of them. As such, the Indo-Pacific region provides a unique and important venue for advancing new international cooperation frameworks for supply chain resilience.

While there are many plurilateral policy fora and dialogues aimed at addressing supply chain resilience issues,<sup>2</sup> the Indo-Pacific Economic Framework (IPEF) Supply Chain Pillar could provide a novel and impactful platform to bring together a diverse range of countries across the Indo-Pacific, from advanced manufacturing powerhouses to rapidly developing emerging economies, from resource-rich, energy-exporting countries to the resource-poor, consumer countries. Together, these economies comprise 40% of global GDP.

### SUPPLY CHAIN RESILIENCE IN THE INDO-PACIFIC

The Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) and the Regional Comprehensive Economic Partnership (RCEP) have helped accelerate regional integration in the Indo-Pacific with a comprehensive approach but were not designed to address the emerging supply chain issues that have surfaced in recent years. Moreover, the two traditional plurilateral trade agreements, conceived more than a decade ago and negotiated over seven to eight years, are already becoming out-of-date.

One way to address supply chain resiliency concerns in the Indo-Pacific is by adding dedicated chapters with detailed provisions, including rules and cooperation mechanisms, on resilient supply chains to these two mega-regional trade agreements. Given

that these agreements already contribute to broadening and deepening regional supply chain integration through preferential market access, cumulative rules of origin, and trade facilitation provisions, building on them would seem like the most logical way forward. However, negotiating revisions and securing approval of such amendments through the respective legislatures of each member is a time-consuming process. Given the urgency of supply chain matters, a more timely approach is needed.

This is where IPEF comes in. Launched by the Biden administration in May 2022, IPEF is a blueprint for U.S. economic engagement in the region. This initiative is distinct from traditional trade agreements by not providing tariff cuts but by addressing pressing regional economic matters beyond the corners of pure trade. Supply chains feature prominently in the initiative with their own work stream. According to the Ministerial Statement issued by IPEF partner countries on September 9, 2022, the objectives of the IPEF Supply Chain Pillar are to develop new rules and frameworks for the supply chain, including to “establish criteria for critical sectors and goods,” “increase resilience and investment in critical sectors and goods,” “establish an information-sharing and crisis response mechanism,” “strengthen supply chain logistics,” “enhance the role of workers,” and “improve supply chain transparency.” These are all essential elements of what a new supply chain resilience framework should look like. It is a novel approach that calls for creative, out-of-the-box thinking but also down-to-earth, pragmatic mechanisms to make it effective and workable in achieving greater resilience.

Some experts criticize IPEF for its lack of a market access element, and there is little doubt that including market access would

<sup>2</sup> Examples include the Trade and Technology Council (TTC) between the United States and the European Union (EU), with a dedicated working group on secure supply chains, as well as sector-specific initiatives, such as the EU’s initiative to develop the Critical Raw Material Act (CRMA) and the Critical Raw Materials Club, the U.S.-led Minerals Security Partnership (MSP), and a semiconductor-focused dialogue known as the Chip 4 alliance.



**A new approach and framework are needed to address supply chain challenges that have surfaced in recent years. IPEF can be complementary to the CPTPP and the RCEP, not mutually exclusive.**

make IPEF a much more powerful framework. Yet we have to be mindful that we cannot find adequate solutions to supply chain disruptions merely by cutting tariffs and enhancing market access throughout the

region. A new approach and framework are needed to address supply chain challenges that have surfaced in recent years. IPEF can be complementary to the CPTPP and the RCEP, not mutually exclusive.

#### CASE STUDY: KOREA'S UREA SHORTAGE CRISIS

**The case in point here is the urea crisis in Korea that almost devoured the nation in the of 2021.**

Urea is the key ingredient used as a fertilizer in many countries; in Korea, it plays a more critical role in the economy as a diesel exhaust fluid required in diesel vehicles to reduce greenhouse gas emissions. As China banned imports of Australian coal in 2020 and faced shortages of coal in its domestic market, the Chinese customs authority imposed new inspection certificates for the export of urea and related items, which was a de facto export ban to secure domestic supplies. This caused a ripple effect throughout the global supply chain, particularly in India. More than half of China's urea in 2021 was exported to India, and the sudden shortage of the fertilizer led to unprecedented price hikes causing hardship for many Indian farmers.

In Korea, the shortage of urea took a more dramatic turn. As the supply of urea dried up a few days after China's new export restriction, the market entered panic mode. Drivers queued up in long lines to buy even a small portion of urea, but in vain. Without adequate supplies, millions of diesel trucks and cars faced the prospect of grinding to a halt, impacting everything from daily grocery deliveries to dispatching ambulances and other emergency vehicles to broader logistics linked to the manufacturing sector. In fact, Korea was relying on China for more than 95% of its urea imports, revealing the vulnerability of the supply chain. Never before had anyone truly imagined such a cheap, easy-to-get material could have such a huge impact on the daily lives of people and the national economy.

In response to the urgent supply crisis, the first of its kind in Korea, the government stepped in. An interagency task force was quickly formed that invoked emergency controls on urea production and transaction, monitored unfair market practices, cut import tariffs, and expedited customs procedures domestically. It also scrambled to mobilize overseas commercial and diplomatic networks to explore alternative sources of urea, engaged in dialogues with many countries for possible sourcing of urea, and allowed for government procurement. The government even mobilized a military aircraft to airlift 27,000 liters (over 7,000 gallons) of urea solution from Australia. As a result of all-out public-private efforts to diversify the urea supply, Korea was able to secure and develop new supply sources in Australia, Vietnam, Indonesia, Saudi Arabia, and other countries.

The urea drama was a big wake-up call for Korea, manifesting the importance of supply chain resilience. There were many trials and errors in the process, but also important lessons were learned. With the benefit of hindsight, we clearly see the elements of market failure. Each of the Korean companies in the urea industry acted in silos, each pursuing cost efficiency and profit maximization. The result was a risky situation where companies found themselves extremely dependent when the crisis hit. The private sector was neither equipped nor prepared to forge alternative new sources in real time.



**IPEF offers an opportunity to develop networks with friends and partners to collaborate in times of need.**

## LESSONS LEARNED FROM THE COVID-19 PANDEMIC

During the pandemic, many countries in the region were caught off-guard and unprepared for the unprecedented disruptions in the supply chains of a wide range of products, such as personal protective gear, automotive semiconductors, as well as commodity raw materials, such as palm oil and urea. Governments responded with a diverse set of policy tools, such as domestic price controls, emergency controls on production and transactions, stockpile drawdowns, export levies and restrictions, and tariff cuts. As we look back at the supply chain shocks and policy responses during the pandemic, it is meaningful and pragmatic to ask hypothetical questions about what could have been done differently if a framework like IPEF had been in place. Such an exercise could help reverse-engineer the most critical elements that need to be included in IPEF to effectively address future supply chain shocks.

## HOW CAN IPEF CONTRIBUTE TO SUPPLY CHAIN RESILIENCE?

The overarching goal of the IPEF Supply Chain Pillar should be to de-risk the global supply chain in the region, not decouple it. As most of the 14 IPEF participating countries have experienced supply chain vulnerabilities in recent years, diversification of the highly concentrated supply chain in collaboration with like-minded partners is in everyone's shared interest. It is also an area where IPEF could create synergies with its unique convening power. The reality in the region is that only 1 of the 13 participating countries, India, has the United States as its top trading partner, and 10 countries record China as their top trading partner, which is unlikely to change anytime soon. Instead, IPEF offers an opportunity to develop networks with friends and partners to collaborate in times of need; in other words, open "friend-shoring" will be a positive-sum game, which can coexist with other established and new supply chains.

**IPEF COUNTRIES' TRADE IN GOODS (USD million)**

COUNTRIES	TRADE	W/UNITED STATES	PERCENTAGE	RANK	W/CHINA	PERCENTAGE	RANK
AUSTRALIA	603,622	37,637	6.2%	3	189,677	31.4%	1
BRUNEI	19,633	230	1.2%	13	2,798	14.3%	2
FIJI	2,931	390	13.3%	3	364	12.4%	5
INDIA	965,216	112,897	11.7%	1	110,572	11.5%	2
INDONESIA	427,712	37,129	8.7%	2	110,009	25.7%	1
JAPAN	1,529,342	221,942	14.5%	2	349,524	22.9%	1
KOREA	1,259,425	169,115	13.4%	2	301,541	23.9%	1
MALAYSIA	537,480	52,446	9.8%	3	101,622	18.9%	1
NEW ZEALAND	123,248	12,148	9.9%	3	34,672	28.1%	1
PHILIPPINES	199,010	20,137	10.1%	3	39,741	20.0%	1
SINGAPORE	1,159,963	107,245	9.2%	3	164,253	14.2%	1
THAILAND	534,880	55,801	10.4%	3	103,004	19.3%	1
VIETNAM	666,545	111,507	16.7%	2	165,774	24.9%	1

Source: UN Comtrade, 2021 data



Setting up cooperation mechanisms and following up with concrete initiatives and measures will ensure that the real effect and benefits of supply chain resilience can be substantiated and reaped by participating countries.

*The principles of the IPEF Supply Chain Pillar should include the following:*

**1. Equipping IPEF with tools and mechanisms to ensure effective cooperation initiatives for supply chain resilience is critical**

Enhanced cooperation is not typically a significant part of traditional trade agreements, which are almost exclusively focused on rules and market access. But in a novel supply chain agreement like IPEF, rulemaking is only part of the story. Setting up cooperation mechanisms and following up with concrete initiatives and measures will ensure that the real effect and benefits of supply chain resilience can be substantiated and reaped by participating countries.

**2. Private-public partnerships must be a key feature**

In traditional trade agreements, the private sector plays an important role as one of the key stakeholders. In the lead-up to and during negotiations, the private sector provides input and feedback to reflect its priorities and concerns. When the agreement enters into force, it is up to the private sector to utilize the agreements to its benefit. In IPEF, however, the private sector is not just a stakeholder but also a main player. Without information sharing by the private sector or actual participation by potential investors, none of the supply chain mechanisms created under IPEF can work as intended. Therefore, public-private partnerships must be a centerpiece of the IPEF supply chain work.

**3. Enhanced supply chain connectivity, which includes co-investment in a group of countries, can be an important benefit in the absence of market access**

Co-investment is vital to diversifying highly

concentrated supply chains in sectors such as critical minerals. The major interest of participating countries is to increase co-investment opportunities in IPEF to develop a balanced and resilient industrial ecosystem in the process of supply chain reconfiguration. Designing policy measures and incentive schemes to promote co-investment opportunities in IPEF could build the momentum of cooperation among participating countries and position IPEF as an effective co-investment promotion platform.

**POLICY RECOMMENDATIONS**

The IPEF Supply Chain Pillar was outlined in the Ministerial Statement with the details to be developed through negotiations. The policy recommendations provided below add to the ongoing conversation by offering practical suggestions and viewpoints that would ensure it is robust and effective.

**1. Develop a Robust IPEF Early Warning System (EWS)**

To prevent or at least better prepare for possible supply chain disruptions, IPEF members need to develop a system in which countries closely monitor what is happening in the supply chain, share information in real time, and catch potential disruptions as early as possible. Information sharing among the countries and between the public and private sectors is critical for such a mechanism to be effective.

The semiconductor shortage during the pandemic and the request for information by the U.S. government in September 2021 is a good case in point. Although the request was a valid and urgent exercise to understand the mismatch of supply and demand and enhance transparency in the enormously complex semiconductor supply chain, semiconductor companies became concerned



**IPEF should develop a set of new rules on what kind of business information countries could request from the private sector, how countries would share such information, and how they could guarantee the confidentiality of sensitive and proprietary business information.**

about sharing sensitive and sometimes confidential and proprietary business information, such as customer identities and production levels. This is one example of the new challenges that policymakers worldwide face in trying to strike the right balance between securing pertinent business information from the private sector and not intruding on sensitive business matters and protecting the privacy and confidentiality of certain business information. Countries may need new domestic legislation or regulations to deal with information sharing by the private sector. As such, IPEF should develop a set of new rules on what kind of business information countries could request from the private sector, how countries would share such information, and how they could guarantee the confidentiality of sensitive and proprietary business information.

Building on the information-gathering and sharing scheme put in place, IPEF members can develop a better functioning IPEF early warning system (EWS). Moreover, they may consider developing EWS indicators to include market trends of price and quantity benchmarks so that the EWS can spot early symptoms of problems in the supply chain and alert the countries. While governments use these indicators to detect emerging supply chain disruptions, cooperation with the private sector is critical because businesses are usually at the forefront of catching the real-time ramifications of any possible disruptions to the market. For example, during Korea's urea supply crisis, a few days passed before companies contacted government officials to report the worsening situation in the market. The Korean government thus lost critical time to help mitigate serious commercial impacts.

IPEF members should consider establishing

a more sustained structure with a dedicated working group to monitor the constantly changing market conditions, spot early signals of potential disruption, and develop a timely and collective response. Members of the private sector should be invited to join the working group.

## **2. Design an Effective Crisis Response Mechanism (CRM)**

One of the primary motivations for countries to join IPEF is its ability to respond collectively to supply chain disruptions. If systems such as supply chain mapping, monitoring, information sharing, and the EWS were put in place and operated effectively, that would prevent many potential supply chain disruptions from escalating into full-blown crises. The countries would have a much better understanding of where they could fill the gap in their choke points and where they could turn for help in a crisis. Moreover, the private sectors of the IPEF members would also be linked to one another in collaboration with their governments under the umbrella of IPEF, which could be useful in addressing supply chain crises.

Crisis response can vary depending on the scope and source of the disruption. External shocks to the supply chain could be triggered by an IPEF member country or a country outside the framework. One example of the former occurred in 2019 when Japan imposed export control measures against Korea on three chemical materials essential for semiconductor manufacturing. Although a bilateral measure, it had the potential to affect the global supply chain of semiconductors. IPEF should develop guidelines to prevent the introduction of discretionary and uncoordinated disruptive actions by a member country. It could also provide steps to mitigate negative impacts should such a



**It would be worthwhile for IPEF members to explore creative ways to help one another with their stockpiles in times of crisis.**

measure be implemented.

The more serious scenario occurs when the disruption is triggered by a nonmember country, especially in the form of an unforeseen crisis and economic coercion. The core objective of the crisis response mechanism (CRM) would be to develop a set of tools that enable governments to collaborate and collectively manage such scenarios. Some recent experiences can provide useful input into what an effective CRM should look like. For example, in early 2022, when the EU suffered a sudden energy shock stemming from the Russian invasion of Ukraine and requested help, Korea and Japan swiftly responded by diverting some of their liquified natural gas (LNG) imports from the Middle East to the EU. This is an example of how countries could help each other during a crisis. On the other hand, in 2010, when Japan faced major disruptions in its supply chains due to a sudden ban on rare earth exports by China, Japan, for the most part, had to cope with the crisis on its own without an international framework to help it weather the storm.

Many countries maintain national stockpiles of critical goods, minerals, and materials in preparation for a national crisis. It would be worthwhile for IPEF members to explore creative ways to help one another with their stockpiles in times of crisis. The “currency swap” system, an important tool for preserving financial stability and preventing financial market disruption from spreading into a full-blown global financial crisis, could also be looked at as a model. Although financial swaps might be a bit different from the ones in the physical world, something like a “supply swap” system could be established as one feature of the CRM. This would help IPEF members act as a collective safeguard mechanism to hedge against economic coercion

toward any member country. To make this work, IPEF members may need to develop a set of rules for the CRM to be workable, taking into consideration the different regulatory regimes of the countries regarding their national stockpiles. Some countries may need to revise their domestic legislation or regulations on the operation of their national stockpiles.

Depending on whether the disruption affects one partner or group or has a global impact, CRM can devise a mechanism to share stockpiles with affected members via the supply swap system or other means. If a group of IPEF countries faces simultaneous supply shortages of a product, the supply swap scheme may not work as effectively. However, IPEF members could hold a special session to develop collective response measures. In addition, if the supply chain disruption becomes global, IPEF countries could explore ways to reach out to other partners, such as the EU or multilateral fora, including the World Trade Organization (WTO).

### **3. Establish New Guidelines and Standards for Export and Corresponding Restrictions**

During the pandemic’s early stages, countries were quick to impose export restrictions on medical supplies, equipment, and medicines. While WTO rules discourage the use of export restrictions, they also recognize that they may be needed in certain circumstances. IPEF can further discourage the use of export restrictions by establishing guidelines on the duration and scope of such measures by fleshing out what the terms “temporary, transparent and targeted” mean in practice with WTO plus elements. Such guidelines, for example, could be formulated to (1) strengthen transparency and predictability in the supply chain by requiring prior





**Sector-specific work in key strategic and essential products and materials should also be pursued, starting with pilot work on one sector.**

notice and consultations upon request, (2) provide a sunset provision with extension conditioned upon a detailed explanation on why it is necessary, (3) provide parameters to encourage “proportional” responses, (4) streamline customs procedures for fast-track treatment of priority products and critical materials between IPEF members to allow essential goods to continue to be traded, and (5) establish limited circumstances for essential cross-border travel to continue to maintain global supply chains.

**4. Promote Supply Chain Connectivity and Co-investment Opportunities**

Co-investment opportunities are among the largest incentives for many countries to join IPEF. The Supply Chain Pillar, in particular, can diversify and strengthen supply chain connectivity among the members of the framework, resulting in new business relationships and investments between companies located in IPEF countries.

IPEF countries can become attractive supply chain partners in various ways. Countries can work together under the four IPEF pillars to improve their respective investment climates by cutting red tape, harmonizing regulatory frameworks, countering corruption, and raising environmental and labor standards. Technical assistance is critical to achieving this goal, and developed IPEF members should prioritize doing so. IPEF can play a key role as a platform to convene and coordinate among development agencies to prioritize financing in supply chain resilience, infrastructure building necessary to promote supply chain connectivity, and investments in priority sectors.

Finally, an IPEF Supply Chain Connectivity Forum should be set up to bring the private sector and governments together, share best

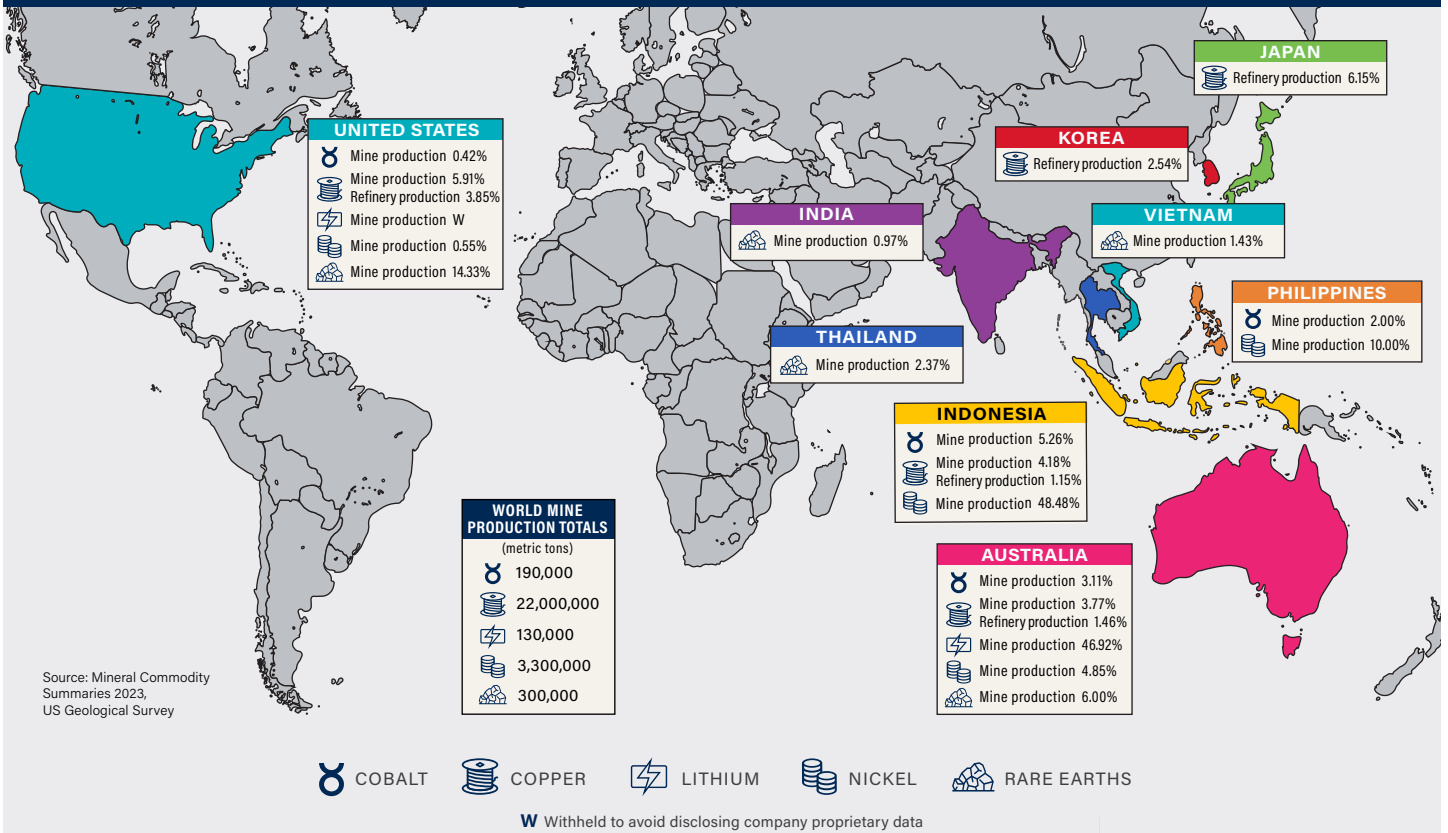
practices on investment policy and incentives, bridge the information gap, identify potential supply chain partnership opportunities, and matchmake between potential partners. As an effective one-stop shop to deal with specific supply chain and investment grievances that businesses face in IPEF countries, establishing “Supply Chain Ombudsmen” (under the Supply Chain Connectivity Forum) should be considered. Such officials appointed by each country could be tasked to consult with businesses to address regulatory supply chain bottlenecks, facilitate co-investment opportunities expeditiously, and coordinate among themselves to advance regulatory harmonization.

**SECTOR-SPECIFIC SUPPLY CHAIN COOPERATION MECHANISM: CRITICAL MINERALS AND MATERIALS**

While sector-wide supply chain work is critical, IPEF should not stop there. Instead, sector-specific work in key strategic and essential products and materials should also be pursued, starting with pilot work on one sector. The critical minerals and materials sector makes the most sense as the first candidate, given its economic and geopolitical importance, coupled with its current high levels of concentration, with the corresponding urgency for diversification. For example, global production and refining of critical raw materials essential for semiconductors, batteries, and green technologies, such as lithium, cobalt, and graphite, are highly concentrated in a single nation. According to the 100-day supply chain review by the Biden administration conducted in 2021, with respect to production, China occupies 60% of graphite, the Democratic Republic of the Congo (DRC) 70% of cobalt, and Australia 60% of lithium. In refining, China dominates 60%–70% of lithium and



## EXPLORING CRITICAL MINERALS: PRODUCTION IN IPEF MEMBER COUNTRIES



Source: Mineral Commodity Summaries 2023, US Geological Survey

## CRITICAL MINERAL RESERVES IN HALF OF 14 IPEF MEMBER COUNTRIES

COBALT	Metric Tons	% of World Totals	NICKEL	Metric Tons	% of World Totals
United States	69,000	0.83%	United States	370,000	0.37%
Australia	1,500,000	18.07%	Australia	21,000,000	21.00%
Indonesia	600,000	7.23%	Indonesia	21,000,000	21.00%
Philippines	260,000	3.13%	Philippines	4,800,000	4.80%

COPPER	Metric Tons	% of World Totals	RARE EARTHS	Metric Tons	% of World Totals
United States	44,000,000	4.94%	United States	2,300,000	1.77%
Australia	97,000,000	10.90%	Australia	4,200,000	3.23%
Indonesia	24,000,000	2.70%	India	6,900,000	5.31%
			Thailand	Not Available	Not Available
			Vietnam	22,000,000	16.92%

LITHIUM	Metric Tons	% of World Totals
United States	1,000,000	3.85%
Australia	6,200,000	23.85%

Source: Mineral Commodity Summaries 2023, US Geological Survey



**IPEF countries can also take collective actions in emergencies and crises, including those caused by economic coercion.**

cobalt, and China and Russia account for almost 40% of nickel.

### **1. Conduct Supply Chain Mapping of Critical Minerals and Materials**

Individual countries have already started to undertake necessary mapping work in the critical minerals and material sector. For example, the U.S. Geological Survey included in its 2022 List of Critical Minerals 50 minerals selected based on multiple criteria related to economic and strategic importance and supply risk. Similarly, Japan designated 34 minerals and Korea 33 minerals, all of which included cobalt, nickel, and rare earth materials. Other IPEF participating countries should be encouraged to do the same, leading to the formulation of IPEF-wide supply chain mapping for this critical sector. The mapping would uncover where the supply chain is highly concentrated and where there are vulnerable nodes. If it is matched with potential sources of critical minerals and materials supplied by other IPEF members, opportunities for new development and diversification of the supply chains would be revealed. Such mapping cooperation could take various forms, whether in bilateral or groupings of certain IPEF members and does not necessarily have to be a hub-and-spoke system with one country at the center. This is a big task that would require significant time and energy, but it is important to identify and address vulnerabilities.

### **2. Harmonize Regulations and Standards on Critical Minerals and Materials**

Some of the biggest hurdles in facilitating the diversification of critical minerals and materials lie in the various regulatory regimes related to mining and processing, including different levels of environmental and labor standards across IPEF countries. IPEF could

develop best practices to (1) enhance the transparency of the respective permitting processes in IPEF countries with clearer timelines, (2) streamline complicated regulations, (3) establish robust environmental and labor standards, and (4) speed up the overall process.

### **3. Establish “Critical Minerals and Materials Swap” (CMS) System**

IPEF countries can also take collective actions in emergencies and crises, including those caused by economic coercion. If one IPEF country faces economic coercion by being cut off from the supply of certain critical materials by a non-IPEF country, a “critical material swap” (CMS) system could be set up among IPEF members. Such a system could make available stockpiles or spare supplies to help the targeted member country needing urgent assistance. The recipient country could return the borrowed supplies after the immediate supply crisis is averted. Of course, there could be sensitivities for some countries with limited supplies by nature to explore this concept of financial credit lines for precious physical minerals and materials. However, IPEF can devise creative ways in which the countries can stand together to urge the non-IPEF country to rectify the acts of economic coercion and help the affected member country mitigate the negative impact in various ways.

### **4. Negotiate Critical Mineral Agreements with IPEF Members to Make Them Eligible for Benefits under the Inflation Reduction Act (IRA)**

The \$369 billion Inflation Reduction Act (IRA), now being implemented by the United States, provides important opportunities to diversify green investment in the region. In its current form, however, the IRA requires critical minerals to be sourced from the



**The IPEF supply chain should be carefully designed to develop not only new rules and standards but also to establish effective cooperation mechanisms to address future supply chain disruptions.**

United States or its free trade agreement (FTA) partners, which include few in the Indo-Pacific region. In late March, the United States concluded a critical minerals agreement with Japan and is now negotiating one with the EU, which reportedly would qualify as a free trade agreement for the purpose of eligibility for IRA benefits. Such agreements should also be negotiated with IPEF partners to allow them to benefit from the IRA. Doing so could greatly boost mining and processing in resource-rich IPEF countries such as Indonesia and the Philippines. In turn, this would promote diversification in this highly concentrated sector while providing a powerful incentive to IPEF participating countries.

### NEXT STEPS

These suggestions are substantial undertakings that, if implemented, would require well thought-out policy considerations regarding substance and process and comprehensive, inclusive multi-stakeholder engagement among the 14 members. But given the real-time urgency of supply chain challenges, promptness is of the essence.

In this regard, a phased, step-by-step approach should be considered. For example, in the first phase during 2023, IPEF countries should work toward agreeing on as many sector-wide supply chain initiatives as possible, including the establishment of an early warning system and a crisis management system. They should also begin sector-specific work on critical minerals and

materials and develop concrete cooperation mechanisms and tools to materialize actual benefits to the participating countries, recognizing that pursuing many of the above suggestions will take more time. Finally, as IPEF members pursue this work, they should consider adding market access components, including tariff cuts, to establish barrier-free supply chains in priority sectors, including critical minerals, batteries, clean technologies, and biopharma.

### CONCLUSION

The IPEF Supply Chain Pillar offers an important opportunity for the United States and its partners to reshape regional supply chain networks to their mutual benefit. Ironically, the supply chain crises posed by the pandemic and climate-related weather considerations and deepened by the war in Ukraine have created rare political momentum to address supply chain challenges. The IPEF supply chain should be carefully designed to develop not only new rules and standards but also to establish effective cooperation mechanisms to address future supply chain disruptions. IPEF has the opportunity to be the first initiative of its kind to address supply chain challenges through a new economic agreement, complementing existing traditional trade agreements. We hope this paper will contribute to a constructive and pragmatic policy discussion on sector-wide and sector-specific steps that can be collectively taken to promote supply chain resilience.