Sustainable Supply Chains within the APEC Region: Challenges, Progress, and Future Tasks

APEC Committee on Trade and Investment

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INTRODUCTION

On 9 May 2025, the Forum on Sustainable Supply Chains within the APEC Region: Challenges, Progress, and Future Tasks, initiated by the Republic of Korea and co-sponsored by Australia; Canada; China; Japan; Malaysia; New Zealand; Peru; the Philippines; Singapore; and United States, was held at the Jeju International Convention Center, Republic of Korea. The Forum brought together speakers and participants from APEC member economies, academia, and international organizations to share experiences, discuss pressing issues, and explore future directions in promoting sustainable and resilient supply chains in the APEC region.

OPENING REMARKS

Director General Choong Jong Oh from the Ministry of Trade, Industry and Energy, Republic of Korea, delivered the opening remarks. He highlighted the evolving role of governments in supply chain resilience and sustainability, especially in the aftermath of the COVID-19 pandemic, which transformed supply chains from purely private-sector concerns into critical policy areas. He emphasized that building sustainable and resilient supply chains is essential for ensuring economic stability and prosperity across the APEC region.

Director General Oh underscored the need for deeper dialogue between the public and private sectors to enhance policy alignment and cooperation. He emphasized that APEC's initiatives, such as launching comprehensive and cross-sectoral supply chain discussions, are timely and necessary to align domestic strategies, improve capabilities, and strengthen sustainable supply chains. He also expressed Korea's commitment to contributing to this effort and invited continued engagement and collaboration among APEC members.

Session 1. The Evolution of Supply Chains: From Efficiency to Sustainability in the APEC

I. The Concept and the Global Direction on Environmental Regulations and Sustainability with Supply Chains

- Dr. Dae-yong Kim, Head of Development Studies, KDI Center for International Development Cooperation

1. Background

Traditionally, global supply chains have been optimized for cost efficiency, timely delivery, and regulatory compliance. However, recent global disruptions, including the COVID-19 pandemic, geopolitical tensions, environment-related challenges, have underscored the urgent need for a paradigm shift. The new imperative is to prioritize resilience, sustainability, global standards, and international collaboration in supply chain management. This transformation aligns with the sustainability goals of multiple economies, such as ESG principles and net-zero emissions, which are fundamentally redefining the future of global supply chains. APEC, as a significant regional community accounting for 40% of the world's population and 44% of global trade, plays a pivotal role in this evolution due to its deeply interconnected supply chains.

2. Key Issues and Discussions

Dr. Kim Dae-yong's presentation was structured into four key sections, providing a comprehensive overview of the current landscape and future trajectory of APEC's supply chains.

1) The Importance of the Korean Supply Chain and the APEC Environment

The introduction highlighted the intricate interconnectedness of APEC's supply chains, using the semiconductor industry as a prime example, where design, manufacturing, assembly, and raw material sourcing are distributed across different economies (e.g., United States for design, the Republic of Korea for manufacturing, Malaysia/Viet Nam for assembly, and Japan for raw materials). This complexity makes global supply chains highly vulnerable to shocks and disruptive factors.

The presentation emphasized that global companies and APEC member economies are increasingly focusing on enhancing transparency and reducing emissions, particularly Scope 3 emissions, which encompass carbon reduction across the entire supply chain value chain. The evolution of international climate agreements significantly impacts global environmental regulations and policies, directly influencing global supply chains.

Within the APEC region, significant changes are already underway. APEC has established strategic frameworks such as the Putrajaya Vision 2040 and adopted an action plan for the Supply Chain Connectivity Framework (SCFAP). Efforts are also being made at the Committee on Trade and Investment (CTI) level to develop green and resilient supply chains, forming a basis for more comprehensive and coordinated initiatives.

2) Case Studies from Major Member Economies

The presentation examined case studies from advanced economies, focusing on supply chain-related environmental initiatives.

- **Carbon Capture, Utilization, and Storage (CCUS):** CCUS was presented as a promising technology and industry. The Republic of Korea is collaborating with Australia and Malaysia on cross-border CO2 storage, while Japan is establishing an international legal framework for CCUS. Australia's Gorgon project stands as the world's largest carbon storage initiative. These partnerships are crucial for building sustainable and resilient supply chains, opening new opportunities for APEC members, and underscoring the need for strengthened cooperation.
- **Korea's Strategic Approach to Core Minerals:** Korea has launched a National Strategic Minerals Strategy to secure clean technologies and energy (e.g., rare earth elements, nickel). This strategy includes diversifying import sources, promoting overseas development projects aligned with ESG standards, and investing in recycling technologies for materials from used batteries and electronic products. Additionally, ESG guidelines have been introduced for overseas investment companies, emphasizing environmental protection, community involvement, and transparent governance to ensure responsible and sustainable supply chain accessibility and trust.
- **China's Green Mining Standards:** China has adopted green mining standards for rare earths, focusing on strict pollution control, waste management, mandatory environmental assessments for new mining projects, and real-time monitoring of mining activities using digital platforms. This approach demonstrates the convergence of environmental regulations and industrial policies.

3) Policy Agendas and Challenges in the APEC Region

Dr. Kim highlighted three primary challenges facing APEC member economies concerning green supply chains:

- **Regulatory and Technical Gaps:** Discrepancies exist in regulations and technical capabilities among APEC members.
- **Cost Burdens and Carbon Leakage:** Developing economies may face significant cost burdens and the risk of carbon leakage due to stringent environmental regulations.
- **Urgent Need for Capacity Building and Financial Support:** There is a critical need for enhanced capacity building and financial assistance to help economies adapt. Dialogue and cooperation are essential to address these gaps and enable Small and Medium-sized Enterprises (SMEs) within the APEC region to connect and thrive.

3. Policy Recommendations for the APEC Region

While specific recommendations were noted as being in the final section of the presentation, the preceding discussions implicitly pointed towards several key policy areas. To overcome the identified challenges and advance sustainable and resilient supply chains, Dr. Kim suggested that APEC economies should focus on:

- **Harmonizing Regulations and Standards:** Working towards more consistent regulatory frameworks to reduce complexities and facilitate trade across the region.
- **Strengthening Capacity Building and Technical Assistance:** Providing targeted support and knowledge transfer to developing economies to help them adopt greener practices and technologies.
- **Promoting Financial Mechanisms:** Establishing or enhancing financial support systems to help economies, especially SMEs, invest in sustainable supply chain improvements.
- **Fostering Cross-Border Cooperation:** Encouraging collaborative initiatives in areas like CCUS and strategic mineral supply chains to leverage collective strengths and share best practices.
- **Integrating ESG Principles:** Further embedding Environmental, Social, and Governance principles into trade and investment policies to ensure responsible and ethical supply chain operations.
- **Facilitating Dialogue:** Continuing open discussions among APEC members to address regulatory and technical gaps, cost burdens, and ensure inclusive growth.

II. Charting APEC's Frameworks for Sustainable Supply Chains

- Dr. Akhmad Bayhaqi, Senior Analyst, APEC Policy Support Unit (PSU)

1. Background

APEC leaders have demonstrated a sustained commitment to sustainable economic growth since 2012, aiming to address environmental challenges, such as extreme weather events, and natural disasters through economic policies that promote growth and strengthen emergency preparedness. Initiatives, as the Connectivity Blueprint 2015-2025 (focusing on energy infrastructure development for sustainable energy access), and the APEC Environment Goods List (adopted in 2012 and updated in 2024). Various APEC working groups, such as Energy, SME, and Transportation, are also actively engaged in promoting green supply chains.

Despite these efforts, significant challenges remain. The increasing scale and complexity of global supply chains, while initially driven by efficiency and profitability, now also bear substantial environmental responsibility. Supply chains account for a vast majority (60% to 80%) of global emissions, with a significant portion (over 90%) falling under Scope 3 emissions (indirect emissions from activities not owned or controlled by the reporting company, but that occur in its value chain). This highlights a critical challenge: while the importance of visibility is recognized, manufacturers often lack clear insight into their sustainability performance across the entire value chain. Furthermore, a lack of data, knowledge, technology, and resources, particularly among lower-tier suppliers, hinders the effective implementation of sustainability strategies. This context necessitates a focused, collaborative approach to integrate sustainability deeply within APEC's supply chain practices.

2. Key Issues and Discussions

Dr. Akhmad Bayhaqi's presentation delved into APEC's current efforts, persistent bottlenecks, the intricate link between supply chains and sustainability, and strategies for leading change.

1) APEC's Current Landscape and Bottlenecks

APEC's commitment to sustainable green growth is evident in its various declarations and initiatives. However, the Supply Chain Connectivity Framework Action Plan (SCFAP) has identified five key chokepoints that hinder optimal supply chain performance and sustainability:

- Inefficient digitalization of end-to-end supply chains, including border procedures and trade documentation exchanges.
- Inadequate infrastructure development to support robust multi-modal connectivity and logistics networks.
- Insufficient cooperation on data flows and cross border payments to support increasingly digitalized supply chains.
- Lack of understanding on green supply chain management practices and increasing pressure for supply chains to be sustainable.
- Lack of targeted support to MSMEs' access and integration into global supply chains.

The fourth chokepoint, specifically, focuses on promoting sustainable green supply chain practices. recent review of the SCFAP 2022-2026 related to this chokepoint indicates that while more APEC companies are issuing sustainability reports and renewable energy production capacity is increasing, the overall transition to clean energy is lagging behind other regions, and progress in reducing carbon dioxide emissions has faced setbacks.

Best practices for addressing the fourth chokepoint include promoting green procurement, pursuing Bio-Circular-Green (BCG) economic model principles, expanding private sector participation through regulatory improvements and tax incentives, supporting SMEs through remote financing, facilitating the transition to a low-carbon economy, and supporting emission reductions through market-based mechanisms.

2) The Interconnectedness of Supply Chains and Sustainability

Supply chains, from raw materials to manufacturing and assembly, frequently cross borders, contributing significantly to global trade mechanisms. While this complexity has traditionally boosted efficiency and profitability, it also results in substantial environmental impact. Consumer goods companies, for example, attribute nearly 80% of their greenhouse gas emissions to their supply chains, encompassing not just direct operations but also extensive logistics activities.

The challenge of emissions is compounded by measurement complexities. While Scope 1 (direct emissions from owned or controlled sources) represents only a fraction, Scope 2 (indirect emissions from purchased energy) and especially Scope 3 (all other indirect emissions in the value chain) account for the majority of emissions, with some reports indicating Scope 3 can be over 90% of total emissions. Yet, only a small percentage (12%) of companies prioritize Scope 3 emissions due to the

sheer difficulty of examining every point along the supply chain. This lack of visibility and data is a significant barrier for CEOs, with 48% of large company CEOs citing it as the biggest challenge in expanding sustainable strategies across their entire supply chain, and 63% reporting difficulties in measuring ESG data across the value chain.

Despite these challenges, collaboration with suppliers is crucial for reducing environmental footprints, though only 25% of leading companies reported involving suppliers in emission reduction efforts. Sustainability is not merely an ethical priority but a competitive advantage, contributing to the long-term viability of supply chains. Enhancing supply chain resilience also inherently improves visibility, reinforcing sustainability efforts.

3) The Business Case for Sustainability and Driving Change

Investing in sustainability and resilience yields significant business returns. An HSBC report highlights that the potential financial costs related to supply chain climate risks (estimated at USD162 billion) are 2.9 times greater than the USD56 billion needed to mitigate these risks. Moreover, potential financial benefits from upstream climate initiatives (estimated at USD165 billion) far outweigh the required investment (USD19.7 billion), demonstrating a strong business case for proactive engagement.

Leading change requires integrating sustainability into supply chain practices, with digital technology playing a key role. Large companies, as resource holders, have a vital role in supporting their suppliers—the "heart" of the global value chain. Providing practical tools and incentives to suppliers, especially smaller ones who lack the capacity and direct connections with multinational companies, is essential for grassroots change. Government policy support is equally crucial at the top level.

APEC's investment plans, such as Principle 6 emphasizing promoting sustainability and Principle 7 focusing on quality of investment as a standard for innovation, job creation, and enhancing community resilience, demonstrate a top-down commitment. However, challenges persist for many suppliers, including a lack of knowledge, technology, and resources related to sustainability, hindering practical application.

4) The Transformative Role of Digital Technology

Digital technology holds immense potential to reduce carbon emissions and significantly contribute to sustainability while improving efficiency. Digital supply chain technologies, such as digital twins and real-time tracking, can enhance visibility and streamline operations. A substantial majority (87%) of CEOs believe digital twins will contribute to real-time modeling of supply chains over the next five years. However, high-quality and rapid data are indispensable for these advanced technologies to deliver tangible results.

3. Policy Recommendations for the APEC Region

To accelerate the transition towards sustainable and resilient supply chains, Dr. Bayhaqi suggested APEC economies should focus on the following policies:

- **Integrate Sustainability and Resilience:** Promote stronger regulatory and collaborative frameworks that integrate sustainability directly into supply chain practices, recognizing that resilience enhances visibility and long-term viability.

- **Enhance Data Visibility and Management:** Invest in initiatives and technologies that improve data collection, sharing, and analysis across the entire supply chain, especially for Scope 3 emissions. Address the lack of data and measurement challenges faced by companies.
- **Strengthen Supplier Collaboration and Capacity Building:** Encourage and incentivize leading companies to collaborate actively with their suppliers, particularly SMEs, by sharing resources, technology, knowledge, and providing practical tools and incentives for adopting sustainable practices.
- **Promote Digital Transformation in Supply Chains:** Support the adoption and development of digital supply chain technologies (e.g., digital twins, real-time tracking) to improve efficiency, reduce carbon emissions, and enhance overall sustainability performance. Ensure that access to high-quality data is prioritized for effective implementation.
- **Address Investment Barriers and Incentivize Green Investment:** Work to reduce costs and perceived risks associated with investing in sustainable practices, highlighting the strong business case and long-term financial benefits. Explore tax incentives and remote financing mechanisms for SMEs transitioning to a low-carbon economy.
- **Foster Regulatory and Collaborative Frameworks:** Develop and enforce robust laws, policies, and guidelines that support sustainable supply chains, while also fostering an environment of strong collaboration among governments, large corporations, and SMEs.
- **Prioritize Policy Coherence:** Ensure that APEC's investment plans and development strategies consistently incorporate sustainability principles at both the grassroots (supplier support) and top (government policy) levels.

Session 2. Identifying and Overcoming Obstacles and Expanding Best Practices for Sustainable Supply Chains

I. Understanding the Challenges to Sustainable Supply Chains: Case of the Philippines' Industry

- Dr. Francis Mark A. Quimba Jr. Director, APEC Philippines Research Center Network

1. Background

The concept of supply chain sustainability, as defined by the United Nations Global Compact Office in 2015, involves managing the environmental, social, and economic impacts throughout the entire product and service lifecycle while promoting good governance. The drivers of supply chain sustainability are viewed along three axes: sustainability-related risks, productivity, and growth, all linked to concepts like transparency and governance.

The COVID-19 pandemic significantly underscored the vulnerabilities of global supply chains, prompting 93% of supply chain leaders surveyed in 2021 to plan for greater flexibility and resilience. While initial responses focused on nearshoring and supplier diversification, many companies ultimately increased inventory and invested in digital tools for agility and visibility. However, achieving true end-to-end supply chain visibility remains a challenge, with only 2% of companies reporting it. The pandemic highlighted the urgent need for enhanced analysis, localization, and digitalization.

In response, the OECD developed a policy toolkit proposing four core concepts for supply chain resilience: predicting risk factors, minimizing exposure to shocks, strengthening international cooperation, and investing in public-private sector collaboration. These pillars emphasize understanding destructive situations, improving domestic policy tools and infrastructure, building trust through cooperative frameworks, and fostering open markets and trade facilitation.

Building on these foundations, Dr. Quimba proposed a framework for sustainable supply chains based on five key pillars, which shift the focus from solely cost-based approaches to ensuring resilience, flexibility, redundancy, and end-to-end visibility.

2. Key Issues and Discussions: Framework, Case Studies, Challenges, and Strategies

Dr. Quimba's presentation elaborated on the five-pillar framework for sustainable supply chains, applied it to two industry case studies in the Philippines, and discussed the resulting challenges and strategies.

1) Five Pillars for a Sustainable Supply Chain

The analytical framework for sustainable supply chains is built upon five interconnected pillars:

- **Corporate-level Transformation of Supply Chains:** This involves shifting focus from cost optimization to building resilience, flexibility, redundancy, and end-to-end visibility within corporate supply chain operations.
- **Growth of Companies within the Region:** Strengthening and diversifying the capabilities of local suppliers is crucial to enhance the resilience and sustainability of supply chains, fostering regional economic growth.

- **Implementation of a Digital Economy:** Leveraging real-time tracking, data analysis, and automation is essential for enhancing agility and sustainability, requiring a certain level of technical capabilities across the chain.
- **Transformation of Human Resources:** Developing highly skilled and adaptable human resources is paramount for sustainable supply chains, necessitating continuous education and training.
- **Integration of ESG (Environmental, Social, Governance):** Embedding ESG principles into supply chain practices includes ethical sourcing, carbon reduction efforts, and improved governance structures.

2) Industry Case Studies from the Philippines

The presentation applied this five-pillar framework to two key manufacturing industries in the Philippines: Electrical and Electronic (E&E) manufacturing and Automotive parts manufacturing.

A. Electrical and Electronic (E&E) Manufacturing Industry:

- **Supply Chain Transition:** Accelerated during COVID-19, with factories increasing buffer/inventory, it is diversifying critical input sources, and globally automating/coordinating. Government support is aimed at long-term incentives for advanced manufacturing, redundancy, and technological investment.
- **Growth of Local Companies:** Historically limited, with multinational companies (MNCs) focusing on Tier 2 and Tier 3 local companies in specific regions, recent government policies aim to promote broader participation.
- **Digital Economy Implementation:** Digitalization is present, but most companies are not yet ready for Industry 4.0. Basic analytics for electrical distribution are being introduced, led by E&E manufacturers and eco-zone companies.
- **Human Resource Transition:** Advanced education is implemented, along with significant in-house training.
- **ESG Integration:** Many companies coordinate ESG efforts and hold ISO certifications for green energy programs.

B. Automotive Parts Manufacturing Industry:

- **Supply Chain Transition:** Traditionally optimized for Just-In-Time (JIT) supply, post-pandemic, shifted focus to key extraction areas, hybrid sourcing, rebalancing, and local production.
- **Growth of Local Companies:** Primarily concentrated in eco-zones, with some outside main islands, government policies like the Comprehensive Automotive Resilience Program and additional promotion programs support local supplier development and electric vehicle (EV) component development (e.g., Electric Vehicle Development Act).
- **Digital Economy Implementation:** Digitalization has reached some maturity, but discrepancies exist between ERP/customer portals. Integrated transparency and interoperability for data are not fully established across the value chain.

- **Human Resource Transition:** Skilled labor is concentrated in labor-intensive areas, with a shortage of high-tech training. Government agencies are working to develop advanced skilled labor.
- **ESG Integration:** Initial compliance with ESG standards, progress in waste reduction and labor welfare are underway. Solar energy and recycling initiatives are primarily limited to eco-zone companies.

3) Challenges in Achieving Sustainable Supply Chains (The Philippines' Context)

Both industries face common and specific challenges:

A. Electrical and Electronic Manufacturing:

- **Supply Chain Transition:** Stagnant export growth, limited export basket, high vulnerability to disruptions are stemmed from dependence on imported parts and dominance of certain global markets.
- **Regional Business Growth:** Limited growth potential is attributed to competition from other ASEAN economies with similar cost advantages. Targeted policies are required to strengthen regional linkages and enable upgrading to higher-value functions.
- **Digital Economy Implementation:** Adoption of Industry 4.0 and digital manufacturing technology are slow. Local companies remain in low-value assembly and testing, constrained by limited local technical infrastructure and minimal investment in digital capabilities.
- **Human Resource Transition:** Shortage of skilled workers and engineers due to "brain drain" to overseas opportunities are worsening the situation.
- **ESG Integration:** Inadequate and unsystematic integration of ESG considerations by the Philippines Department of Economy and Department of Trade and Industry are leading to room for improvement in global ESG awareness.

B. Automotive Parts Manufacturing:

- **Supply Chain Transition:** Local production is limited to ~330 types of parts (out of 20,000-30,000 components). High dependence on imports for high-value-added parts is exacerbating vulnerabilities.
- **Regional Business Growth:** Small domestic automotive market limits economies of scale and attractiveness for global investment.
- **Digital Economy Implementation:** Limited ripple effects from digitalization due to constrained local R&D infrastructure and minimal government support for innovation is leading in slow digital transformation.
- **Human Resource Transition:** Shortage of highly skilled workers and those with strong English proficiency hinders the shift to technologically advanced and knowledge-intensive production.

- **ESG Integration:** Minimal government and industry incentives are provided within the industry despite clear potential for ESG contributions (e.g., battery component production).

4) Strategies for Overcoming Challenges

A common overarching strategy is **diversification** across supply chain activities and the development of local sources, applicable to both E&E and automotive manufacturing. Key strategies and the role of government include:

- **Diversification of Activities and Local Source Development:** Essential for both industries to enhance supply chain and local company resilience.
- **Government Role:**
    - **Emergency Incentives:** Providing targeted incentives during crises.
    - **ESG Adoption & Renewable Energy Promotion:** Establishing key measures and plans to integrate ESG and promote renewable energy for sustainable supply chains.
    - **Workforce Upskilling:** Developing an understanding of the entire value chain from lowest to highest tiers, enabling the workforce to utilize digital technologies.
- **Leveraging Existing Policies:** The government of the Philippines is already promoting initiatives like the 2040 SCP Strategy Framework Action Plan, The Philippines's Green Jobs Act, Philippine Central Bank's Sustainable Finance Framework, and the Department of Trade and Industry's Sustainable Industry Program with industry-specific roadmaps.

4. Policy Recommendations for the APEC Region

Based on the Philippine case studies and the proposed framework, Dr Quimba suggested the following policies for APEC economies to foster sustainable supply chains:

- **Prioritize Diversification and Localization:** Implement policies that encourage diversification of supply chain activities and foster the development of robust local supplier bases, reducing over-reliance on single sources or regions.
- **Accelerate Digital Transformation:** Invest in local technical infrastructure and incentivize private sector investment in digital capabilities (e.g., Industry 4.0 adoption, real-time tracking, data analytics) to enhance agility, visibility, and sustainability across value chains.
- **Bridge the Human Resource Skill Gap:** Develop comprehensive programs for upskilling and reskilling the workforce to meet the demands of technologically advanced and knowledge-intensive production. Address issues like "brain drain" through attractive domestic opportunities and advanced training.
- **Systematically Integrate ESG:** Explicitly integrate ESG considerations into domestic economic and trade policies, providing clear incentives and establishing systematic frameworks for ESG adoption by industries, including promoting green energy options and waste reduction.

- **Strengthen Public-Private Collaboration:** Foster robust cooperative frameworks and improve communication channels between the public and private sectors to predict risks, minimize shocks, and facilitate joint investments in sustainable supply chain initiatives.
- **Enhance International Cooperation and Predictability:** Work towards opening markets, enhancing predictability in trade, and facilitating cross-border movement of goods and services to support resilient and sustainable supply chains.
- **Tailor Policies to Industry Needs:** Recognize the diverse characteristics of industries and economies, developing specific regulations and incentives that address unique challenges and promote sustainable practices effectively.

II. Sustainable Supply Chains: Best Practices and Policy Options

- Dr. Matteo Fiorini Trade Policy Analyst, OECD

1. Background

Sustainability in supply chains has emerged as a core element of global trade agendas, driven by increasing awareness of environmental, social, and governance (ESG) factors. The private sector has been at the forefront of this evolution, often acting as a pioneer in developing and implementing voluntary sustainability standards and third-party assurance programs. These initiatives aim to improve performance within supply chains by providing tools, information, guidelines, and frameworks, as well as setting requirements and expectations for organizations' operations, products, services, and suppliers.

Despite the proactive role of the private sector, the landscape of sustainability initiatives is fragmented and highly complex, presenting challenges such as high implementation and certification costs, particularly for Small and Medium-sized Enterprises (SMEs). This complexity can inadvertently create de facto trade barriers. The OECD's work emphasizes the need for policymakers to gain a deeper understanding of this diverse environment and to consider the synergy between mandatory frameworks and voluntary SIs in policy design to optimize efficiency and supply chain operations.

2. Key Issues and Discussions

The presentation elaborated on two main points: the private sector's role as a key player in supply chain sustainability governance and lessons for policy action.

1) Private Sector Companies as Key Players in Comprehensive Supply Chain Sustainability Governance

The private sector has demonstrated a pioneering spirit in the sustainability ecosystem of supply chains through various voluntary multi-stakeholder and industry-led programs. These initiatives leverage voluntary sustainability standards, third-party assurance programs, labeling, and information systems to achieve sustainability goals. They contribute by:

- **Improving Performance:** Providing tools, information, guidelines, and frameworks to help companies achieve sustainability objectives.
- **Setting Requirements and Expectations:** Establishing clear requirements for an organization's operations, products, services, and suppliers to align with sustainability goals.

- **Evaluating Operations:** Assisting in the assessment of company operations, products, or services against sustainability criteria.

However, the effectiveness and reliability of these sustainability initiatives vary significantly. Research indicates a heterogeneous structure of SIs, with only a small proportion demonstrating robust characteristics such as strong certification systems, independence guarantees, effective grievance mechanisms, broad stakeholder participation, and high transparency. Many initiatives lack these crucial attributes, leading to potential gaps in their impact. The environment is fragmented, and the high costs associated with implementation and certification can disproportionately burden SMEs, potentially acting as trade barriers.

2) Lessons for Policy Action

The second part of the presentation focused on how policymakers can support and leverage the private sector's role in sustainable supply chains. Two crucial aspects were highlighted for policymakers:

- **Deeper Understanding of Sustainability Initiatives (SIs):** Given the complexity and heterogeneity of SIs, policymakers must develop a deeper understanding of this area. This involves raising awareness and establishing common understandings of core criteria for effective initiatives. The OECD, in collaboration with the ITC, published a report aimed at helping users and policymakers understand the core characteristics of SIs and identify reliable, high-quality initiatives. This report classifies various characteristics based on criteria such as governance, scope, and objectives, providing a framework for evaluation.
- **Synergy Between Mandatory Frameworks and Voluntary SIs:** Policymakers should focus on creating synergies between mandatory legislative frameworks and voluntary sustainability initiatives. While mandatory frameworks can address foundational issues, SIs allow for flexibility and industry-specific solutions. The private sector is already integrated into various policy tools, making this synergy crucial. Examples include:
    - **Public Procurement Law:** Laws like the Act on the Promotion of Green Product Purchases in Korea (enacted 2005) and the EU Public Procurement Directive integrate sustainability initiatives into public purchasing decisions. The EU Conflict Minerals Regulation (2017) also exemplifies how laws can require companies to ensure responsible sourcing.
    - **Trade Agreements:** Recent research by the OECD indicates a growing trend of incorporating SIs into trade agreements. An analysis of 66 trade agreements currently in effect (as of 2023) with 180 provisions related to SIs showed a continuous increase in their inclusion since the early 2000s.

The presentation identified three representative approaches to integrating SIs into trade agreements:

* **Activation/Promotion**: Provisions designed to promote the use of sustainable initiatives to optimize benefits for economic actors. Approximately 25% of provisions in trade agreements use cooperation as an agenda item for SIs, involving information sharing (e.g., UK and Japan economic partnerships) and hosting international forums (e.g., EU-New Zealand trade agreement).

* **Providing Guidelines**: Less common but effective, this approach involves providing recommendations for SIs to minimize environmental impacts while reducing unnecessary trade barrier risks. Examples include environmental provisions in the CPTPP, Brazil-Chile, Chile-Uruguay, USMCA, and Chile-Ecuador agreements.

* **Integration Clauses**: These provisions are similar to public procurement law, recognizing SIs as evidence of legal compliance or as a mechanism for companies to evaluate SI alignment with their goals. An example is Chapter 5 of the climate change agreement signed by Costa Rica; New Zealand; and Switzerland, which addresses SIs and targets voluntary programs.

The analysis of these approaches considered their pros and cons, particularly regarding their impact on the environment and the SI landscape, by assessing specificity and quality. While promotion clauses might carry a higher risk if the SI quality is low, and cooperation could also entail risks if poorly connected with government efforts, guidelines combined with cooperation generally present the lowest risk and the best option. Empirical research presented also linked these agreements to supply chain trade proportions, highlighting that some member economies show very high proportions of trade directly or indirectly reflected in SI-related trade agreement clauses.

3. Policy Recommendations for the APEC Region

Based on the insights presented, Dr. Fiorini suggested the following policies for APEC economies to advance sustainable supply chains:

- **Enhance Understanding and Awareness:** Policymakers within APEC should invest in understanding the complex and diverse landscape of existing sustainability initiatives. This includes utilizing resources like the OECD-ITC report to identify high-quality, reliable SIs and to establish common understandings of core criteria.
- **Foster Synergy between Mandatory and Voluntary Frameworks:** APEC member economies should explore and implement policies that create strong synergies between mandatory regulations and voluntary sustainability initiatives. This approach leverages the flexibility and innovation of the private sector while ensuring a baseline level of compliance.
- **Integrate SIs into Trade and Public Procurement Policies:** APEC members should consider further incorporating SI-related clauses into bilateral and regional trade agreements, adopting approaches that promote, guide, and integrate these initiatives effectively. Similarly, SIs should be recognized and utilized within public procurement frameworks to incentivize sustainable practices.
- **Address Barriers for SMEs:** Recognizing the cost burdens and complexity SIs can impose on SMEs, APEC should develop targeted support mechanisms, capacity-building programs, and financial assistance to help these enterprises participate effectively in sustainable supply chains. This will help prevent SIs from inadvertently acting as trade barriers for smaller businesses.
- **Promote Open, Transparent, and Collaborative Policy Experimentation:** To achieve long-term, tangible progress in sustainable supply chains, APEC should encourage evidence-based policy experimentation, fostering an environment of open dialogue, transparency, and collaboration among member economies, private sector entities, and civil society.

Session 3. The Next Steps for APEC's Sustainable Supply Chains Agenda

I. The Importance of Establishing a Stable Semiconductor Supply Chain Formation and Public-Private Cooperation

- Mr. Jongwan Ko, Head of Industry Support Division, Korea Semiconductor Industry Association

1. Background

The semiconductor industry has experienced exponential growth, evolving from a USD50 billion market in the 1990s to USD683.4 billion in 2024, with projections to exceed USD1 trillion by 2030. This growth has been driven by the proliferation of IT devices, from PCs and mobile devices to modern advancements in AI, autonomous vehicles, biotechnology, robotics, and 6G communications. Semiconductors serve as the fundamental "brain" of all electronic devices, making their importance as strategic assets increasingly vital.

The industry's business model has transitioned from Integrated Device Manufacturing (IDM), where a single company managed the entire process, to a highly specialized and distributed global supply chain. This division of labor, with specialized companies handling design, manufacturing, packaging, equipment, and materials across different economies, has maximized efficiency in terms of production costs and time. For instance, a smartphone's Application Processor (AP) might be designed in Europe or United States., packaged in Malaysia, assembled in China, and sold in the United States, with equipment and materials supplied by economies like Europe; Japan; and the United States. This complex, interconnected global supply chain is a testament to international cooperation and complementary expertise.

However, in recent years, this intricate supply chain has faced significant volatility due to various factors, including logistics restrictions from the COVID-19 pandemic, geopolitical tensions, and natural disasters. These disruptions have highlighted vulnerabilities, leading to shortages that have impacted critical sectors, such as the automotive industry. In response, individual economies are intensifying efforts to expand domestic manufacturing capabilities and secure semiconductor technology and materials, aiming for greater self-sufficiency. This pursuit of self-sufficiency is reshaping the global semiconductor industry structure, necessitating a renewed focus on strategic international cooperation.

2. Key Issues and Discussions

Mr. Go Jong-wan's presentation detailed the challenges currently confronting the semiconductor industry and emphasized the multi-faceted nature of international cooperation required to overcome them.

1) Challenges Facing the Semiconductor Industry

The semiconductor industry is grappling with several complex issues that necessitate global collaboration:

- **Technological Limitations:** As semiconductor miniaturization processes approach their physical limits, the cost and time required for developing cutting-edge processes (e.g., advanced packaging, AI semiconductors, compound semiconductors) have increased

exponentially. It is becoming increasingly difficult for a single company or even an entire economy to overcome these technological hurdles independently.

- **Increasing Investment Costs:** The capital investment required for constructing semiconductor manufacturing facilities (fabs) has surged dramatically. From an average of USD1.6 billion in 2009, the cost has now exceeded USD17 billion per fab, making it an enormous financial burden that single entities cannot easily bear.
- **Shortage of Skilled Personnel:** The rapid advancement of semiconductor technology and expanding global investment in equipment have led to a soaring demand for highly skilled design and manufacturing personnel. However, there is a global shortage of specialized talent, making it difficult for companies to secure the necessary workforce and highlighting an urgent need for solutions in talent cultivation and retention.

These challenges collectively underscore the limitations of individual efforts and emphasize the indispensable need for cross-border cooperation to ensure sustained growth and innovation in the semiconductor industry.

2) International Cooperation Efforts

To address the aforementioned challenges, international cooperation is essential. The presentation highlighted the collaborative efforts through joint research between academia, industry, and government, promoting personnel exchange, and building robust semiconductor ecosystems through joint supply chain responses. A significant example cited was the **first U.S.-ROK Supply Chain Cooperation Dialogue (SCCD)** held in June 2024, which serves as a crucial starting point for broader global cooperation.

The SCCD focused on four major cooperation tasks:

- **Semiconductor R&D Cooperation:** With the advent of AI and big data, demand for high-performance semiconductors, miniaturization, and high integration is increasing. Overcoming technological limitations and developing next-generation semiconductors requires joint research among global academia, industry, and research institutions. Establishing a full-cycle collaboration model—from initial technology development to demonstration and mass production—through a global academia-industry-research framework is considered an effective solution.
- **Semiconductor Talent Cultivation:** Cultivating future industry leaders and driving domestic economic growth through talent development is a global challenge. Economies with strong universities and research institutions must expand opportunities for sharing resources and technologies. This includes practical semiconductor education and training programs, industry-academia R&D collaborations, joint utilization of research infrastructure, and active company involvement in industry-academia talent exchange to enhance global competitiveness.
- **Resilient Semiconductor Supply Chain:** Beyond advanced manufacturing technology, the ability to respond to risks across the entire global supply chain has become a core competency. Strengthening the global cooperation network based on the complementary roles of each economy in the semiconductor supply chain is vital. Prompt information sharing

and joint response strategies are necessary to flexibly and quickly address unforeseen risks like wars or natural disasters, ensuring a stable semiconductor supply.

- **Investment Activation:** Sustainable growth in the semiconductor industry hinges on active corporate investment, which requires a supportive investment environment. Governments worldwide are implementing policies to incentivize investment, such as the U.S. CHIPS Act (subsidies and tax credits) and Korean tax incentives for semiconductor companies. Creating a favorable investment environment by removing investment barriers and institutional uncertainties is crucial, as the industry's competitiveness is driven by swift corporate investments.

The scope of international cooperation extends beyond bilateral agreements. The presentation highlighted the **entry of Korean and U.S. companies into Viet Nam** as a prime example of broader collaboration. Viet Nam is emerging as a strategic hub for semiconductor companies due to its young, abundant labor force, proactive government support, and strategic location. Korean and U.S. firms (e.g., Amkor Technology, Hanmi Micron, Marvell, ADT) are establishing packaging factories and design centers in Viet am, contributing to the economy's developing semiconductor ecosystem, particularly in post-processing. Continued support from Korea and the U.S. for workforce development in Viet Nam, alongside efforts to address challenges like power supply and visas, is expected to solidify Viet Nam's role as a new demand hub and labor supply economy within the global supply chain. Other economies, such as India and Malaysia, are also emerging as key semiconductor hubs, further contributing to the global semiconductor supply chain formation.

3. Policy Recommendations for the APEC Region

To foster a more robust, resilient, and sustainable semiconductor supply chain within the APEC region, Mr. Ko suggested the following policies:

- **Strengthen Joint R&D and Innovation:** APEC economies should facilitate and support global academia-industry-research collaboration frameworks for next-generation semiconductor technologies. This includes fostering joint research projects on areas like AI semiconductors, compound semiconductors, and advanced packaging, and establishing full-cycle collaboration models from development to mass production.

- **Enhance Workforce Development and Exchange:** Given the global talent shortage, APEC members should prioritize initiatives to cultivate highly skilled semiconductor personnel. This involves expanding opportunities for resource and technology sharing among universities and research institutions, developing practical education and training programs, promoting industry-academia R&D collaboration, and facilitating cross-border talent exchange programs.

- **Build Resilient Supply Chain Networks:** APEC economies must work collaboratively to establish a more resilient and cooperative global semiconductor supply chain system. This entails strengthening global cooperation networks based on complementary roles, promptly sharing supply chain information, and developing joint response strategies to unexpected risks (e.g., pandemics, natural disasters, geopolitical events) to ensure stable semiconductor supply.

- **Create Favorable Investment Environments:** Governments within APEC should continue to implement and enhance supportive policies that activate corporate investment in the

semiconductor industry. This includes providing appropriate incentives (e.g., subsidies, tax credits) and actively working to remove investment barriers and reduce institutional uncertainties to foster a stable and attractive environment for semiconductor companies.

- **Promote Regional Hub Development:** APEC should support the development of emerging semiconductor hubs like India; Malaysia; and Viet Nam, by assisting with workforce development, infrastructure improvements (e.g., power supply), and addressing operational challenges for companies. This distributed approach can enhance the overall resilience and diversification of the global supply chain.
- **Foster Cross-Industry Convergence:** Recognize the semiconductor's central role in addressing complex societal threats (e.g., climate change, cyberattacks). APEC members should encourage convergence and cooperation between the semiconductor industry and other vital sectors such as ICT, healthcare, and energy to drive innovative solutions for the public good and unlock new market opportunities.

II. Strengthening APEC's Public-Private Dialogue with Industry Perspective

- Mr. Ming Shan, Vice Chairman, China Council for the Promotion of International Trade

1. Background

Over the past 15 years, ABAC has issued more than 70 proposals and numerous recommendations concerning supply chains to APEC leaders and ministers. These efforts stem from a recognition of persistent challenges such as inefficiencies in infrastructure and logistics, complex customs procedures, lack of transparency, and insufficient policy and regulatory coordination. ABAC's ongoing engagement aims to address these issues and promote a business environment conducive to robust and predictable supply chain operations across APEC economies.

From a business perspective, the resilience and efficiency of supply chains are paramount for trade and investment. ABAC believes that supply chain measures must be reasonable from a business standpoint to be effective, focusing on principles that minimize distortions to trade and investment. The increasing complexity of global economic interactions and emerging threats (e.g., pandemics, natural disasters, geopolitical shifts) have further underscored the urgency of strengthening the resilience of supply chains.

2. Key Issues and Discussions: ABAC's Recommendations and Identified Trends

ABAC's recommendations on supply chains can be broadly classified into five key categories, reflecting a holistic approach to improving regional connectivity and business environment:

1) Infrastructure Connectivity and Regulatory Coordination

ABAC has consistently advocated for enhanced cross-border logistics infrastructure through increased investment in ports, railways, and roads to improve connectivity and efficiency. This includes addressing bottlenecks, coordinating regulations to improve ICT systems, streamlining logistics, and reducing compliance costs. Initiatives like establishing a single window system and developing regional coordination mechanisms for medical sector supply chain security and public

risk response (drawing lessons from natural disasters and public health crises) have also been proposed.

2) Economic Integration in the Region and Trade Policy

ABAC recommends, opposing protectionism, fostering a non-discriminatory and transparent business environment, and improving dispute resolution mechanisms. Key proposals include reducing non-tariff barriers, supporting early harvest initiatives within the Free Trade Area of the Asia-Pacific (FTAAP), and harmonizing document standards and unifying customs procedures.

3) Green Sustainable Supply Chains

ABAC promotes green development for supply chains, advocating for their application in clean technology industries like electric vehicles and solar energy, and proposing collaboration in the development of key minerals. Recommendations also include reducing carbon footprints based on environmentally friendly supply chains and actively avoiding "green protectionism."

In June 2024, ABAC hosted a high-level roundtable on sustainable supply chains, which yielded three specific recommendations:

- **Supplier Engagement Programs:** Large companies should establish programs to raise awareness and strengthen capabilities of their suppliers, enabling them to meet ESG and reporting standards and transition to greener practices.
- **Flexible Carbon Footprint Measurement:** APEC economies should apply flexible and commercialized carbon footprint measurement methods, leveraging existing data to reduce entry costs, especially for small and medium-sized suppliers.
- **Ecosystem Implementation:** Governments should provide incentives and policies, financial institutions should offer green financing and supply chain financing, and a collaborative platform involving industry associations, NGOs, and multinational corporations should be established, along with training programs for knowledge sharing and best practices dissemination.

4) Digital Transformation of Supply Chains

ABAC proposes the digitization of core products, trade models, and manufacturing processes. It advocates for improving efficiency through digital trade platforms and promoting technological innovation and industrial transformation across supply chains.

5) Industry-Specific Cooperation Platforms

ABAC suggests utilizing platforms to connect companies and leverage tools such as the ABAC-developed supply chain resilience toolkit. Recommendations also include organizing industry dialogues, hosting roundtables, and conducting sector-specific analyses to share best practices in logistics services, multimodal transportation, and digital transformation.

Trends in Supply Chains and Related Recommendations (2024)

Last year, ABAC identified four significant trends in supply chains and presented corresponding recommendations to leaders:

- **Localization/Regionalization:** Global supply chains are becoming more centralized, concentrating in East Asia, North America, and Europe. This trend is evident with 60% of intermediate goods in East Asia and Europe originating from these regions, and Canada and Mexico becoming top trading partners for the U.S.
- **Diversification:** Many multinational companies are distributing their production and procurement across multiple regions. Since 2018, two-thirds of multinational companies have reformed their global supply chains to spread operations across more member economies.
- **Digitalization:** The production of core products and trade methods are increasingly digitalized. It is estimated that 50% of service trade and 12% of goods trade are conducted through technology, with digital technology projected to drive 34% of the increase in global trade volume.
- **Green Transformation:** Supply chains are increasingly incorporating sustainability into technological innovation and the entire product life cycle, strengthening environmental protection goals. An example is the strengthening of the electric vehicle supply chain in the Asia-Pacific region, for which ABAC made three recommendations in 2024:
    - Reduce tariffs and non-tariff barriers on electric vehicle parts.
    - Invest in and build electric vehicle charging station infrastructure to strengthen connectivity.
    - Strengthen electric vehicle supply chain resilience through R&D for new technologies, enhanced personnel training, and promotion of best practice and knowledge sharing.

Principles for Resilient and Open Supply Chains (2024 Joint Recommendation)

Recognizing that administrative measures have become obstacles to intra-regional supply chain cooperation, ABAC made a joint recommendation in 2024 emphasizing the need to build resilient and open supply chains. These recommendations, reflected in ABAC's summit-level report, proposed several core principles:

- **Open Supply Chains:** Supply chains must remain open.
- **Transparent and Non-Discriminatory Policies:** Governments should maintain commitment to transparent and non-discriminatory policies.
- **Business Consultation for New Measures:** Additional measures that could affect raw material procurement, production, cross-border transportation, distribution, and delivery must be introduced in consultation with businesses, notified in advance, designed to support business operational plans, limited to the narrowest possible scope, and consistent with WTO regulations.
- **Avoid Trade and Investment Distortion:** All measures, including domestic regulations, must be designed to avoid distorting trade and investment, provide a high level of convenience and predictability for businesses, and result in tangible benefits.

- **Compliance with International Rules for Subsidies:** Subsidies affecting supply chain design must comply with WTO rules and align with BEPS Pillar 2.

These principles have gained even greater importance given the unprecedented disruptions in supply chain cooperation witnessed in the Asia-Pacific region. At its second meeting in February 2025, ABAC expressed concerns regarding tariff measures and policy uncertainties, which have led to increased costs, supply chain disruptions, and caution in corporate plans and investments. ABAC urged trade Affirm their commitment to APEC's founding goals of free and open trade, promote multilateralism, equality, and free trade, and facilitating trade, supply chains, innovation and investment.

3. Policy Recommendations for the APEC Region

Based on ABAC's extensive work and proposals, the following policy recommendations are proposed from Dr. Shan for APEC economies to foster robust, efficient, resilient, and sustainable supply chains:

- **Prioritize Infrastructure and Regulatory Harmonization:** Invest in cross-border logistics infrastructure and actively pursue regulatory coordination to reduce compliance costs and streamline customs procedures (e.g., through single window systems).
- **Promote Open and Non-Discriminatory Trade:** Commit to avoiding protectionist measures, reducing non-tariff barriers, and ensuring transparent and predictable trade policies that foster a level playing field for businesses.
- **Integrate Green and Sustainable Practices:** Encourage the adoption of green development principles across supply chains, support collaboration in clean technology industries, and implement flexible approaches to carbon footprint measurement, particularly supporting SMEs in meeting ESG standards.
- **Accelerate Digital Transformation:** Invest in the digitalization of core products, trade models, and manufacturing processes, leveraging digital trade platforms to enhance efficiency and promote technological innovation across supply chains.
- **Foster Industry-Specific Collaboration:** Utilize existing and create new platforms for industry dialogue, roundtables, and sector-specific analyses to share best practices in logistics, multimodal transportation, and digital transformation, thereby enhancing overall supply chain resilience.
- **Uphold Principles of Openness and Transparency:** Adhere to ABAC's proposed principles for supply chains, ensuring they remain open, policies are transparent and non-discriminatory, and new measures are introduced in consultation with businesses, with clear notification and limited scope, consistent with WTO regulations.
- **Support Multilateral Trade System:** Actively support the multilateral trade system, advocate for predictable and non-discriminatory trade, and work towards achieving early harvests in trade liberalization.
- **Facilitate Business Participation in Policy Discussions:** Ensure the business community is actively involved in policy discussions related to supply chain measures to ensure that proposed solutions are practical, effective, and align with commercial realities.

Session 4. Panel Discussion

☐ (Moderator) Dr. Yonghun Jung

(Question) What are the most significant supply chain-related barriers that APEC economies are currently facing in achieving environmental sustainability and strengthening cooperation, especially in sectors critical to trade and economic security?

(Answer: Francis Quimba) The main barriers faced by APEC economies are: (1) lack of visibility across the supply chain; (2) challenges in adopting environmental, social, and governance (ESG) practices; and (3) differences in the level of infrastructure development.

Supply chains in the APEC region are complex and interconnected across multiple member economies, and understanding only one part of the supply chain limits interactions with other economies in the region, making it important to have end-to-end visibility into the entire supply chain.

ESG adoption can facilitate knowledge sharing and provide a wealth of data, but its effectiveness is limited by underutilization and a lack of understanding of the entire value chain across the region.

APEC economies are at different levels of infrastructure development, which is a significant barrier to digitization and information sharing.

(Question: What mechanisms can APEC establish to ensure that knowledge sharing platforms effectively address the changing needs of the private sector in strengthening supply chain resilience and promoting sustainable practices?

(Answer: Matteo Fiorini) For APEC to strengthen knowledge sharing and inter-agency cooperation on sustainability, it is effective to engage with international organizations that already have expertise in this area, such as the United Nations Forum on Sustainability Standards, the International Trade Centre, the ISEAL Alliance, and the OECD Centre for Responsible Management.

The United Nations Forum on Sustainability Standards (UNFSS) has an excellent track record in systematizing research on the effectiveness of institutional design of sustainability initiatives and expertise in systematizing research-based work.

The International Trade Center operates the Standard Map database, which is the premier resource for evidence-based research on sustainability initiatives, and has expertise in field work with SMEs and how they integrate into the operation of sustainability initiatives.

The ISEAL Alliance is an interesting organization that serves as a "standard for standards" and is an interesting organization that defines and establishes codes of good practice and credibility for sustainability initiatives, and is well positioned to provide insights to interested companies and policy makers.

The OECD Center for Responsible Management is very active in the design of mechanisms that mandatory frameworks can incorporate to recognize the conformity of sustainability initiatives to specific sustainability requirements, and has expertise in developing policy mechanisms.

(Question) Based on today's discussion, what are the three priority actions that APEC economies should take?

(Answer: Akhmad Bayhaqi) APEC needs to (1) develop a business case for sustainability; (2) integrate supply chain visibility, resilience, and sustainability; and (3) strengthen interoperability.

Developing a business case for sustainability practices in the supply chain is critical, as the key issue is who will pay for them, and good partnerships between large and small suppliers are essential, as a supply chain is only as strong as its weakest link.

The three concepts of supply chain visibility, supply chain resilience, and supply chain sustainability actually rely on the same technology foundation, and combining them can increase the return on investment (ROI) of sustainability tools.

CTI (Commission for Trade and Investment) is working on a single window interoperability and paperless trade platform project, and information from ports and customs is actually quite similar, so interoperability between public platforms and commercial platforms can provide a more comprehensive supply chain view.

(Answer: Shan Ming) Given that ABAC's core role is to provide recommendations to APEC Leaders and Ministers, the recommendations are to create an open environment, promote the Free Trade Area of the Asia-Pacific (FTAAP), and build capacity, citing the Singapore Business Federation's Green Supply Chain Program as an example.

ABAC members defined sustainable supply chains as "open, resilient, equitable and climate-responsive supply chains" and specifically called for a rollback of tariffs: In a letter to the MRT, ABAC members called for adopting a Greener Trade Framework, including for the liberalization and facilitation of greener trade, and the mitigation and rejection of green protectionism.

Advocated for the inclusion of supply chain chapters in regional agreements and trade agreements as an early achievement in the promotion of the Free Trade Area of the Asia-Pacific (FTAAP), as it is a journey, not just a goal, and requires early harvest, early collaboration, and low hanging fruit.

Capacity Building: Given the fragmentation of regulations due to different reporting requirements in different economies and the burden on SMEs, there is a need to establish capacity building programs involving governments, financial institutions, business associations, and large corporations to help SMEs comply with all requirements and make their supply chains greener.

The Singapore Business Federation's Green Supply Chain Program is a good example of how business associations can help companies develop sustainable supply chains, as buyers are working with their top 20 suppliers to identify their carbon footprint, address gaps, and implement greener procurement systems.

(Question) Are there any specific examples in the semiconductor industry?

(Answer: Jongwan Koh) Many companies and economies are involved in the semiconductor manufacturing process, making it difficult to manage stably, and the semiconductor manufacturing issues have affected other industries such as the automotive and IT industries, so there is a need to share information on technology, manufacturing capacity, human resources, and key minerals.

As the current APEC industry working groups are not specific enough, it is proposed to establish specialized working groups for major industries such as semiconductors and AI to discuss and prevent supply chain risks through information sharing.

(Question) How can we ensure that today's dialogue leads to concrete follow-up initiatives?

(Answer: Shan Ming) Emphasized that more interaction at all levels, utilization of concrete tools and platforms, greater sharing of best practices, and integration into CCPIT's next year's work plan will greatly benefit ABAC business cooperation in the future.

In the past, ABAC has been limited to providing recommendations to leaders and sending letters to ministers, but there is a need for more interaction with the APEC community at all levels, and for platforms like today to disseminate results and work with APEC officials to realize recommendations.

The China International Supply Chain EXPO is an excellent platform for businesses from across the APEC region to collaborate and find suppliers, and the ABAC USA-developed Supply Chain Resilience Toolkit shows SMEs how to identify and improve weak links in their supply chains, and is translated into Vietnamese, Korean, Chinese, and English, and the dissemination of the toolkit could be a concrete follow-up outcome.

The Singapore Business Federation could share these best practices more broadly across APEC as an example of how to help suppliers go green.

All of the elements mentioned can be incorporated into the CCPIT Work Program Plan for 2025, which can be used as a very informative reference on how to organize business interactions in the coming year um.

(Question) What are the most important mindset shifts needed for sustainable supply chains over the next five years?

(Answer: Dae-yong Kim) Institutionalizing policy dialogue and knowledge sharing platforms, and leveraging development cooperation programs as policy advisory business.

(Answer: Akhmad Bayhaqi) Strengthening public-private partnerships and promoting the digitalization of supply chains.

(Answer: Francis Quimba) Build on the the Philippines' initiative for sustainable production and consumption to link sustainable consumption to sustainable production.

(Answer: Matteo Fiorini) Achieving sustainability in the supply chain is essential, and bold policy actions must be flexible and recognize that there may be multiple ways to achieve the goal.

(Answer: Jongwan Koh) No single economy can be responsible for the entire supply chain.

(Answer: Shan Ming) Building a sustainable supply chain is a big project, but we need to start with small businesses and build on the small steps they can take to achieve a sustainable supply chain step by step.

(Question: Indonesian Ministry of Commerce representative) How can the aspects of transparency and openness be linked in terms of regional cooperation in APEC or other forms of bilateral cooperation, and to what extent and how can they be strengthened in terms of openness in the partnership itself?

(Answer: Akhmad Bayhaqi) Enhancing transparency and openness in sustainable supply chains requires leveraging existing frameworks (ASEAN Single Window, APEC Data Standards, etc.), an incremental approach through pilot projects, building trust is the most important prerequisite, and clear guidelines on data security and risk management.

(Answer: Francis Quimba) Creating an environment of trust where suppliers at all tiers are comfortable sharing information to improve end-to-end visibility, and providing incentives and a comfortable environment for companies to share information.

(Question: Supply Chain Management Association of the Philippines) Scope 3 reporting can provide a wealth of data to understand the impacts of supply chains and identify starting points for creating sustainable supply chains, but how can we make Scope 3 reporting more accessible to smaller companies that are bound to be impacted, not just large companies with the resources?

(Answer: Matteo Fiorini) Solutions from a services trade perspective include utilizing professional services to ensure that all companies have access to service providers, and ensuring that data flows freely, which is important to facilitate the free movement of data as much as possible.

(Answer: Shan Ming) With more companies in Asia-Pacific disclosing Scope 1 and 2 emissions, but lagging behind in reporting Scope 3 emissions, solutions include: 1) leadership from large companies and supplier engagement; 2) flexible data management approaches; and 3) leveraging ecosystem enablers.

RECOMMENDATIONS

Based on the forum's discussions and presentations, the following recommendations are proposed to advance sustainable supply chains across the APEC region:

1. Promote knowledge-sharing and technical cooperation on sustainable supply chain models across APEC economies.

2. Support capacity building, particularly for developing economies and SMEs, to overcome regulatory and technical challenges.

3. Facilitate public-private dialogue on sustainability standards, digital transformation.

4. Leverage APEC cooperation to enhance investment in infrastructure, digital innovation, and sustainable technology.

CONCLUSIONS

The Forum successfully brought together diverse stakeholders to address the challenges and explore opportunities in fostering sustainable and resilient supply chains. It emphasized the urgency for inclusive and practical policy responses in light of ongoing environmental, economic, and geopolitical shifts.

The inputs from speakers, participants, and panelists highlighted the importance of integrated action involving governments, industry, and multilateral collaboration. Going forward, APEC's continued focus on building consensus, aligning frameworks, and supporting practical capacity building will be vital to advancing regional sustainability goals.