Asia-Pacific
Economic Cooperation

2025/CTI/FOR1/004
Session 2

Understanding the Challenges to Sustainable Supply Chains: Case of Philippine Industries

Submitted by: Philippine Institute for Development Studies

APEC 2025
KOREA

Forum on Sustainable Supply Chains in the APEC Region: Challenges, Progress, and Future Tasks
Jeju Island, Korea
9 May 2025

Understanding the Challenges to Sustainable Supply Chains: Case of Philippine Industries

Francis Mark A. Quimba, PhD

Forum on Sustainable Supply Chains in the APEC Region: Challenges, Progress, and Future Tasks
Jeju Island, Republic of Korea
May 9, 2025

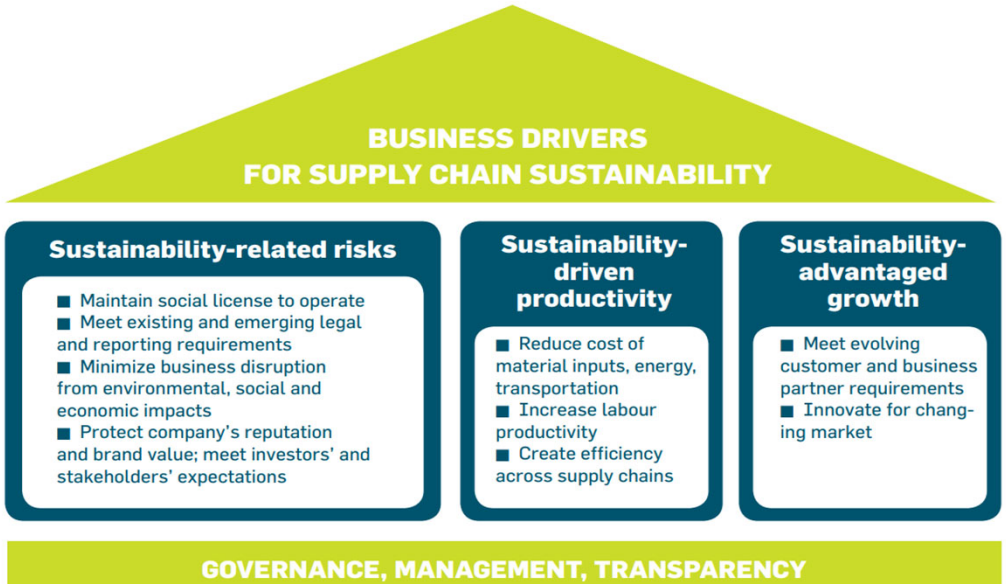
Philippine Institute for Development Studies
Surian sa mga Pag-aaral Pangkaunlaran ng Pilipinas

Outline

1. Background on Sustainable Supply Chains
   a. Definitions
   b. Framework of Analysis
2. Case of two Philippine Industries
   a. Electrical and electronics manufacturing
   b. Automotive parts and components manufacturing
3. Strategies to address the challenges
4. Policy Recommendations

Sustainable supply chains have been discussed since 2010s.

"Supply chain sustainability" is the management of **environmental, social and economic impacts**, and the encouragement of **good governance practices** throughout the lifecycles of goods and services." (UN Global Compact Office and BSR, 2015)



Source: UN Global Compact Office and BSR, 2015

COVID-19 reinforced the need to ensure supply chains are resilient and sustainable

93% of global supply chain leaders planned to make their supply chains more flexible and resilient due to COVID-19 disruptions (McKinsey, 2021).

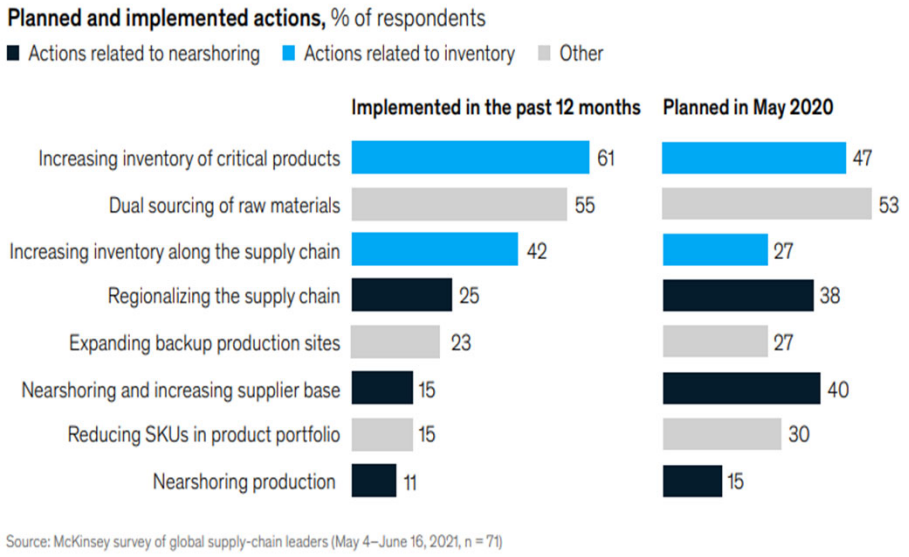
Initial plans emphasized nearshoring and supplier diversification, but most companies ultimately increased **inventory** and invested in **digital tools** for agility and visibility.

Risk management practices expanded, yet only 2% of firms had visibility beyond their second-tier suppliers—exposing major vulnerabilities.

The pandemic accelerated investment in **advanced analytics**, **regionalization**, and **digitalization**, but talent shortages and slow ESG integration remain challenges.

Exhibit 1

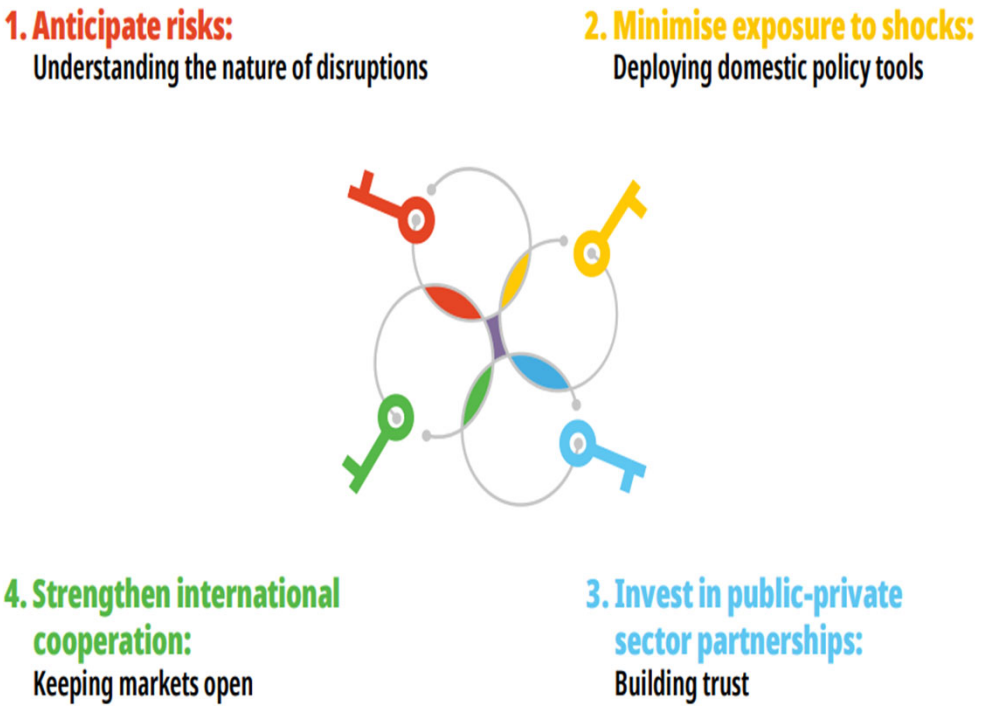
Companies originally planned to increase nearshoring of suppliers to boost supply-chain resilience—but wound up increasing inventory.



Source: McKinsey survey of global supply-chain leaders (May 4–June 16, 2021, n = 71)

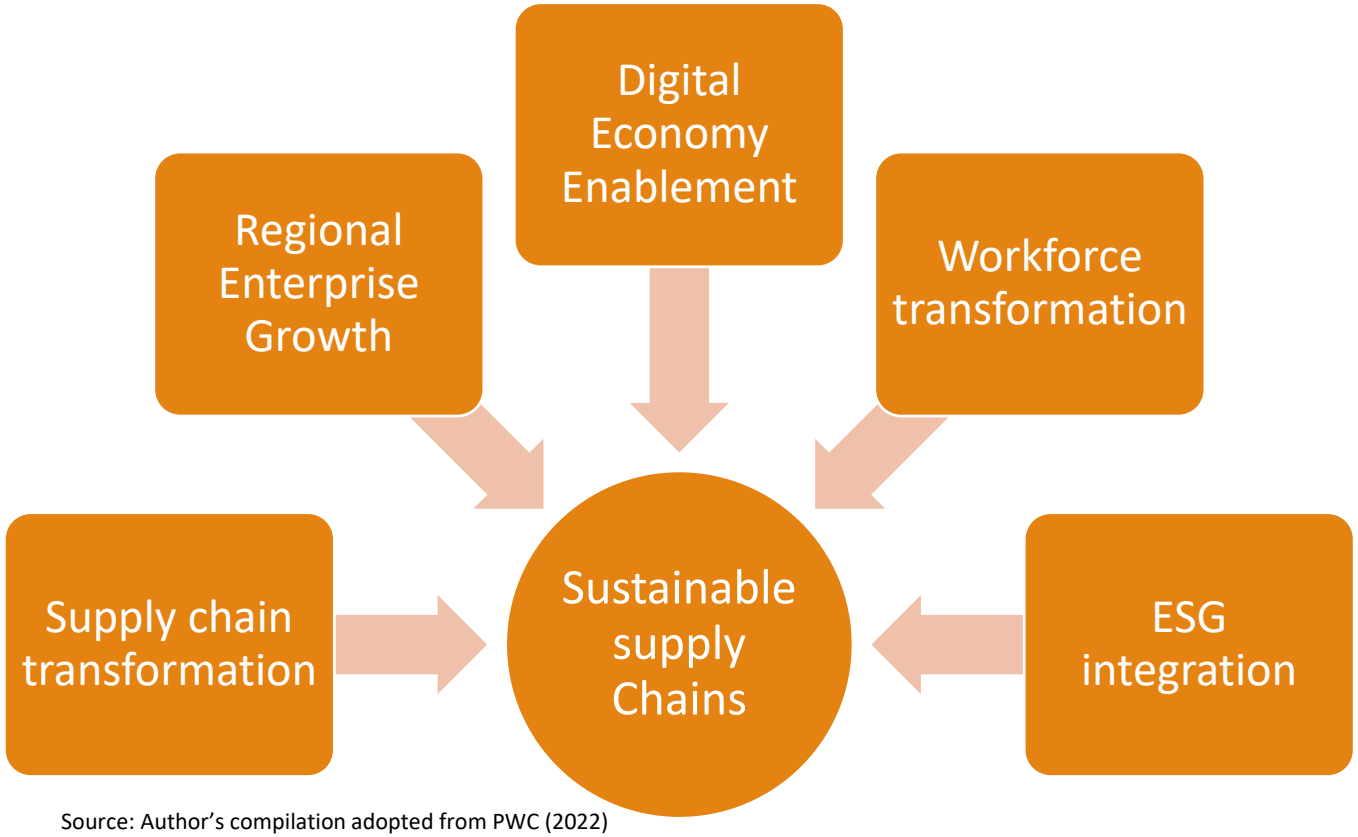
Supply chain resilience is just one side of sustainable supply chains

Supply chain resilience is “the ability of a supply chain to return to normal operations following a disruption”. (OECD Policy Toolkit 2025)



Source: Keys to Resilient Supply Chains, OECD Policy Toolkit 2025

Five Pillars of Sustainable supply chains



Source: Author's compilation adopted from PWC (2022)

2 Cases to illustrate Supply Chain Sustainability

E&E MANUFACTURING

Accounting for approximately 47% of total exports

This industry predominantly involves labor-intensive operations, particularly semiconductor assembly and test (A&T),

The sector employs roughly 344,450 workers across 258 firms

AUTOMOTIVE MANUFACTURING

Domestically focused, with limited integration into global or regional automotive value chains.

Specific competencies, especially in wire harness manufacturing, making it the fourth-largest global exporter of wire harnesses.

Stagnation in local assembly of Complete Knock Down (CKD) units and a limited scale of local suppliers.

Contributes significantly to exports around USD 4 billion in recent assessments, accounting for about 6.4% of Philippine exports

State of supply chains of Case studies

Pillar	E&E Manufacturing	Automotive Manufacutring
Supply Chain Transformation	Shifted to flexible, redundant, tech-enabled networks	JIT-to-hybrid sourcing; redundancy through OEM ties
Regional Enterprise Growth	Centralized in CALABARZON; low local supplier density	More dispersed (e.g. Cebu, Batangas); moderate supplier base
Digital Economy Enablement	Advanced use of AI, ERP, and control towers	Limited to Tier 1 suppliers; digital tools unevenly adopted
Workforce Transformation	High-skill investments; 128k tech target by 2028	Mostly production-skilled; needs EV/digital retraining
ESG Integration	RBA, ISO-certified; renewable energy transition started	Basic ESG compliance; gains expected via EVIDA

Sustainable Supply Chain Challenges of E&E Manufacturing in the Philippines

Principles	Issues
Supply Chain Transformation	limited diversification of its export basket (mostly IC A&T activities), and vulnerability to global supply chain disruptions due to high reliance on imported inputs and a few dominant global markets
Regional Enterprise Growth	competition from other ASEAN countries with similar cost advantages limits regional growth potential. The country needs targeted policies to enhance regional linkages and facilitate firm upgrading to higher-value functions
Digital Economy Enablement	Relatively slow uptake of advanced digital manufacturing technologies, including Industry 4.0 tools. Local firms predominantly remain in lower-value assembly and test functions, constrained by limited local technology infrastructure and minimal investment in digital capabilities.
Workforce transformation	shortage of industry-specific technicians and engineers, driven by a talent exodus due to better opportunities abroad. The workforce primarily engages in lower-value-added, labor-intensive roles, limiting opportunities for functional upgrading and transition to more skill-intensive roles
ESG Integration	explicit integration of environmental, social, and governance (ESG) considerations remains underdeveloped

Sustainable Supply Chain Challenges of Automotive Manufacturing in the Philippines

Principles	Issues/Challenges
Supply Chain Transformation	Dependence on imports, especially for high-value-added components, exacerbates vulnerability, hindering resilience in the supply chain
Regional Enterprise Growth	The domestic automotive market remains relatively small, limiting economies of scale and attractiveness for investment by global automotive firms.
Digital Economy Enablement	Limited local research and development (R&D) infrastructure, along with minimal government support for innovation, slows digital transformation efforts.
Workforce transformation	The shortfall in high-skilled labor constrains higher-value activities, particularly those related to R&D and advanced manufacturing technologies
ESG Integration	Minimal government and industry-level incentives exist for integrating comprehensive ESG strategies into production practices. The environmental impacts of traditional automotive manufacturing also remain inadequately addressed

Strategies to address the challenges

E&E MANUFACTURING

- ✓ diversify its activities up the value chain
- ✓ establish a clear semiconductor industry roadmap and address bottlenecks like energy and infrastructure
- ✓ Attracting suppliers of packaging materials, chemicals, and spare parts to shorten supply lines

AUTOMOTIVE MANUFACTURING

- ➢ diversifying the parts portfolio to spread the risk and create new capabilities.
- ➢ developing local sources for inputs would make the supply chain more self-reliant.

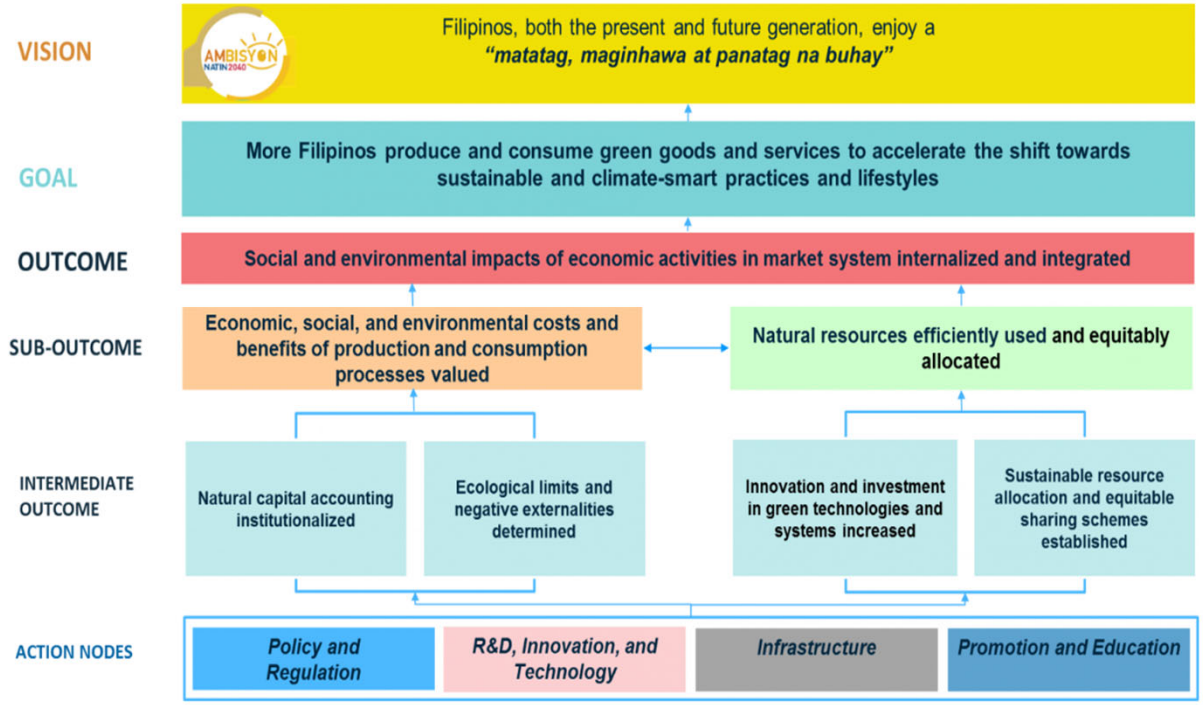
Upgrading technology and skills in both sectors will also mean they can handle more complex tasks if a partner plant abroad goes down (the Philippine plant could step in with advanced processes, for instance).

government could consider **contingency incentives**

continuous upskilling of the workforce in both digital competencies and technical know-how is needed.

Implementing sustainable supply chains in the Philippines

Philippine Action Plan for SCP Strategic Framework

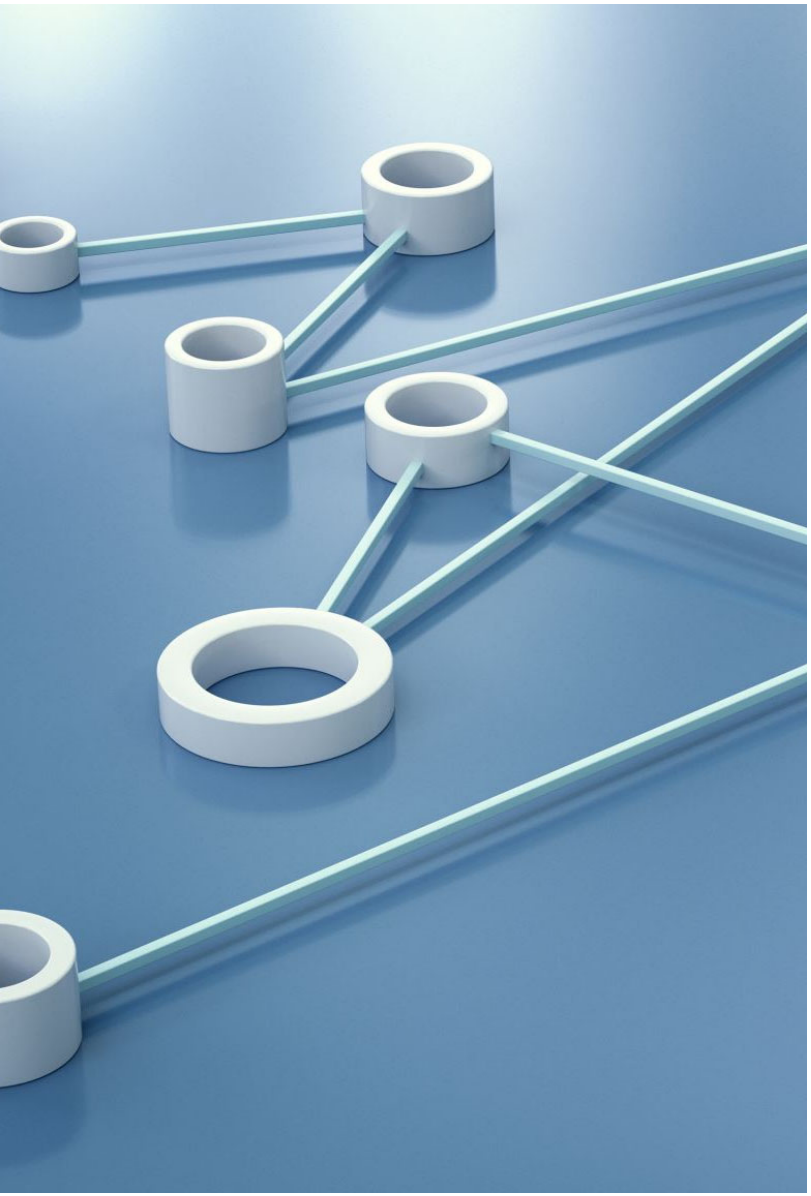


Guiding framework to influence and steer sustainable behavior and practices across sectors and levels of government by implementing programmatic policy reforms and set of actions

Four nodes: (a) policy and regulation, (b) research and development, innovation, and technology, (c) infrastructure, and (d) promotion and education. These action nodes are intended to help in internalizing and integrating the social and environmental impacts of economic activities in the market system

Other policy documents support the implementation of sustainable supply chains

- Philippine Green Jobs Act (Republic Act 10771)
- Sustainable Finance Framework of the *Bangko Sentral ng Pilipinas* (Central Bank of the Philippines*)*
- Sustainable industries program of the Department of Trade and Industry
- Specific Industry roadmaps



Concluding remarks

Difficult to point specific regulations because of the specific characteristics of value chains for specific industries and economies. BUT, the PILLARS are more common across economies of APEC and industries.

Among the pillars that we have identified in this presentation, we find that digitalization, workforce transformation and ESG adoption are among the difficult ones to fully implement.

The role of government is in providing an enabling environment, incentives and policy direction to motivate businesses to undertake activities to address these challenges.

Philippine Institute for Development Studies
Surian sa mga Pag-aaral Pangkaunlaran ng Pilipinas

Service through policy research

Thank you

/PIDS.PH

@PIDS_PH

http://www.pids.gov.ph

EMAIL: fquimba@mail.pids.gov.ph