

Module 3: Sustainable Supply Chain Resilience, Risk, and Responsible Decision-Making

Module Description:

Module 3 focuses on what happens when supply chains are placed under pressure and why resilience should be understood as a sustainability issue, not just a risk-management issue. Students examine how uncertainty, disruption, supplier dependence, inventory choices, lead-time variability, and network concentration affect not only business continuity, but also waste, emissions, livelihoods, service access, and social responsibility. Rather than asking only how a firm can “bounce back,” this module asks a more demanding question: **bounce back for whom, at what cost, and with what consequences?**

The key shift in this module is that resilience is not treated as a purely technical buffer against disruption. A supply chain can appear highly resilient from the focal firm’s point of view while pushing cost, delay, carbon, or labor pressure elsewhere in the network. Likewise, a supply chain can look highly efficient in normal times while being deeply fragile in the face of floods, port congestion, supplier shutdowns, heat stress, energy instability, or sudden demand spikes. Students therefore learn to analyze resilience through a broader sustainable development lens.

This is especially important for Vietnam and Southeast Asia, where climate-exposed infrastructure, export dependence, supplier concentration, cold-chain pressure, and uneven logistical capabilities make resilience a live sustainability challenge rather than a purely theoretical one.

Key SDG links:

- **SDG 8** Decent Work and Economic Growth
- **SDG 9** Industry, Innovation and Infrastructure
- **SDG 12** Responsible Consumption and Production
- **SDG 13** Climate Action
- **SDG 17** Partnerships for the Goals

Learning Objectives: By the end of this module, students should be able to:

- Explain why supply chain resilience is connected to sustainability, not only continuity and cost control.
- Identify key sources of supply chain vulnerability, including uncertainty, concentration, delay, infrastructure pressure, and limited visibility.
- Distinguish between resilience strategies that genuinely improve sustainability and those that simply relocate risk or burden elsewhere.
- Analyze how disruption affects different stakeholders across a supply chain, including suppliers, workers, customers, and communities.
- Evaluate trade-offs between efficiency, resilience, service, carbon impact, and social responsibility.

- Communicate an evidence-based argument for a more responsible and resilient supply chain strategy and show how it aligns with relevant SDGs.

Module 3 Pre-class activities

Purpose:

To prepare students to recognize that supply chain disruption is never only an operational event. The pre-class work introduces them to the idea that disruption has uneven effects across the network and that resilience strategies can create both sustainability gains and sustainability trade-offs.

Pre-class Activity 1: Choose one disruption case

Choose one supply chain case that could realistically affect Vietnam or Southeast Asia. For example:

- a flood or storm disrupting transport corridors or port access
- a single-source supplier shutdown affecting an export manufacturer
- a cold-chain failure affecting seafood, pharmaceuticals, or fresh produce
- a fuel price spike increasing freight and distribution costs
- a sudden demand surge in e-commerce or essential goods
- customs or border delays affecting imported components

Students should prepare a short risk sketch identifying:

- the likely focal company or sector
- the weakest point in the chain
- the stakeholder most likely to be hit first
- one likely environmental or social consequence of the disruption

Pre-class Activity 2: Short written response

Write **200–250 words total** and post to the online class discussion forum before the session.

In your response, identify:

- the main source of vulnerability in the case
- one likely “efficiency-first” response
- one likely “resilience-first” response
- **two SDGs** that are most at risk if the chain fails
- one trade-off that might appear if the company tries to recover quickly

This task is designed to shift students away from the idea that resilience always means “more stock” or “more suppliers.” Instead, they begin thinking about different kinds of resilience and what they cost.

Module 3 In-class activities

Recommended format: This module is designed as a continuous three-part simulation. Activity 1 diagnoses the disruption, Activity 2 develops the resilience response, and Activity 3 requires students to publicly justify their decisions. Lecturers should run all three activities together where time allows.

Activity 1: Disruption Cascade Tabletop

Goal: Show how one disruption can spread across a supply network and create sustainability consequences beyond the initial event.

Each group is given a supply chain case and a set of disruptions. These may include:

Case 1: Seafood Cold Chain Disruption

Context: A seafood exporter moves frozen shrimp from the Mekong Delta to Ho Chi Minh City for export.

Starting disruption: A major storm damages roads and delays refrigerated trucks by 18 hours.

Students should consider: Spoilage risk, cold-chain energy use, missed export deadlines, food waste, driver pressure, and whether to reroute, hold stock, or use emergency transport.

Case 2: Garment Export Supplier Shock

Context: A garment manufacturer in Vietnam produces clothing for an international brand.

Starting disruption: One key fabric supplier experiences a two-week production delay.

Students should consider: Supplier dependence, labor scheduling, overtime pressure, missed shipping deadlines, air freight as a costly high-carbon backup, and whether to delay or source from another supplier.

Case 3: E-commerce Demand Surge

Context: An e-commerce platform is running a major sales campaign in Ho Chi Minh City and Hanoi.

Starting disruption: Demand is 40% higher than forecast.

Students should consider: Warehouse congestion, delivery worker pressure, failed delivery attempts, packaging waste, extra trips, customer delays, and whether to extend delivery windows or add temporary couriers.

Case 4: Pharmaceutical Distribution Failure

Context: A distributor delivers temperature-sensitive medicine from a central warehouse to hospitals and clinics.

Starting disruption: A refrigeration unit fails at a regional warehouse overnight.

Students should consider: Patient access, product safety, emergency redistribution, medicine waste, trust in the distributor, and whether to discard, test, or urgently reroute stock.

Case 5: Coffee Export Route Disruption

Context: A coffee exporter moves beans from the Central Highlands to port for international shipment.

Starting disruption: Heavy rain damages a key road route and increases travel time by one day.

Students should consider: Export reliability, storage needs, alternative transport routes, fuel use, smallholder supplier pressure, and whether to delay shipment or reroute.

Case 6: Electronics Component Shortage

Context: A Vietnamese electronics assembler relies on imported components from overseas suppliers.

Starting disruption: A key component shipment is delayed at port due to documentation problems.

Students should consider: Production stoppage, inventory buffers, supplier diversification, emergency sourcing, idle capacity, quality risk, and whether to pause production or switch suppliers.

Groups work through the disruption round by round. After each round, they must record:

- what part of the chain is affected next
- what operational choice they make in response
- whether that response increases cost, waste, carbon, delay, or labor pressure
- which stakeholder absorbs the new burden
- which SDG becomes more exposed

This activity is deliberately more dynamic than a standard case discussion. Students see that disruptions do not stay where they begin.

Output: A short Disruption Cascade Log showing how the disruption spread, which decisions were made, and where sustainability costs appeared.

Activity 2: Resilience Portfolio Board

Goal: Help students compare different resilience strategies and understand that not all resilience measures are equally sustainable, affordable, or easy to implement.

Each group is given a supply chain disruption case. Your task is to build a resilience portfolio by choosing three interventions from the table below. You cannot choose only the options that help the company recover fastest. Your final portfolio must balance:

- resilience
- sustainability
- service performance
- implementation difficulty
- stakeholder impact
- SDG alignment

At least **one** of your chosen interventions must have a strong sustainability effect.

Intervention	Notional Cost	Implementation Burden	Resilience Effect	Sustainability Effect	Service Effect
Extra safety stock	Medium	Low	High	Low / negative	High
Backup supplier	Medium	Medium	High	Medium	Medium

Intervention	Notional Cost	Implementation Burden	Resilience Effect	Sustainability Effect	Service Effect
Local or regional sourcing	High	High	Medium / high	High	Medium
Route flexibility	Medium	Medium	High	Medium	High
Better forecasting system	Medium	Medium	Medium	Medium	High
Renewable backup energy	High	High	Medium	High	Medium
Partner data-sharing	Low	High	High	Medium	High
Emergency transport contract	Medium	Low	High	Low / negative	High
Supplier support fund	Medium	Medium	Medium	High	Medium
Extra warehouse capacity	High	High	High	Low / negative	High

After choosing your three interventions, discuss the following questions:

- Which intervention improves resilience most clearly?
- Which intervention improves sustainability most clearly?
- Which intervention protects service levels most clearly?
- Which intervention creates the biggest trade-off?
- Which stakeholders benefit from your portfolio?
- Which stakeholders may carry new burdens?
- Which SDGs are supported or placed under pressure?

Output: Create a one-page Resilience Portfolio Board showing:

- the three interventions selected
- the reason each was chosen
- the main trade-off attached to each intervention
- the SDGs most relevant to the portfolio
- one risk or weakness that remains unresolved

This activity shows that resilience is not only about recovering quickly from disruption. A responsible supply chain must also consider sustainability, service, cost, and who carries the burden of recovery.

Activity 3: Recovery Press Conference

Goal: Push students to justify recovery decisions in public, ethical, and strategic terms rather than only internal operational terms.

After building their resilience portfolio, each group is told that the disruption has become public. They must now explain their response in a brief mock press conference.

Each group prepares a short statement answering:

- What happened?
- What is the company doing to stabilize the supply chain?
- How is it protecting customers, suppliers, workers, and communities?
- What sustainability trade-offs has it had to manage?
- Which SDGs shaped its priorities?

Other groups act as journalists, community voices, or business partners and ask critical questions such as:

- Are you just shifting the burden to suppliers?
- Are you increasing emissions to protect service levels?
- Why were you so dependent on one source or route in the first place?
- What are you doing to prevent this from happening again?

This activity diversifies the class by requiring public justification, ethical framing, and strategic communication rather than just analysis.

Output: A short **Recovery Statement** plus a list of two revisions the group would make after hearing stakeholder questions.

Post-class activities

Post-class Reflection: Students respond to the prompt:

“When does resilience become a sustainability issue rather than simply a continuity issue?”

Students should write a short reflection that includes:

- one resilience strategy that looked attractive at first but became more complicated during class
- one stakeholder whose position became clearer through the disruption exercise
- one SDG trade-off they had not considered before
- one way they now think supply chain resilience should be evaluated differently

This reflection is important because it reinforces the main lesson of the module: a resilient supply chain is not automatically a sustainable one. Students should leave understanding that resilience decisions can redistribute cost, carbon, pressure, and vulnerability across the network, and that responsible decision-making requires more than recovering quickly.