

The Strait of Hormuz as a supply chain resilience stress test: maritime chokepoints, energy logistics, and sustainability policy

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Abstract — The Strait of Hormuz is one of the world's most strategically significant maritime chokepoints, carrying a substantial share of global oil and liquefied natural gas trade. This study uses a case-informed conceptual policy analysis and thematic review of 22 peer-reviewed articles to examine how chokepoint disruption transmits risk across global supply chains. The coding process produced 268 coded instances; five dominant categories accounted for 53.7% of the total and concerned structural chokepoint dependence, the efficiency-resilience tradeoff, energy-cost transmission, sustainability and social externalities, and multi-actor governance. The 2026 Hormuz disruption is used as a bounded contemporary case, updated through August 28, 2026, to connect the literature-derived themes with observed logistics and energy-market effects. The study develops a corridor-level resilience framework in which chokepoint exposure produces operational consequences and cascading effects that are moderated by firm, market, and government responses. The contribution is to position corridor resilience as a distinct complement to firm- and network-level supply chain resilience.

Index Terms — Strait of Hormuz, maritime chokepoints, supply chain resilience, sustainable logistics

I. INTRODUCTION

Global supply chains often appear expansive, flexible, and technologically sophisticated. Yet many remain dependent on geographically narrow transport corridors that can be disrupted by conflict, political instability, regulatory intervention, environmental events, or infrastructure constraints. These chokepoints are not peripheral features of global trade; they are structural vulnerabilities embedded in the movement of goods, energy, and critical commodities. When a chokepoint becomes unstable, consequences can extend beyond the immediate location of disruption to affect freight reliability, transportation costs, energy prices, inventory decisions, maritime insurance, national security planning, and social and environmental outcomes.

Prior research on supply chain resilience emphasizes preparation, response, recovery, redundancy, flexibility, visibility, collaboration, and adaptive capacity (Christopher & Peck, 2004; Ponomarov & Holcomb, 2009; Rice & Sheffi, 2005; Wieland & Wallenburg, 2013). These concepts remain essential, but maritime chokepoints show that resilience cannot be understood only at the firm or network level. It must also be examined through the physical and geopolitical infrastructures that make global movement possible.

The Strait of Hormuz provides a particularly important example. The International Energy Agency (IEA, 2026b) reports that approximately 20 million barrels per day of crude oil and oil products transited the strait in 2025, representing roughly 25% of world seaborne oil trade. Approximately 93% of Qatar's and 96% of the United Arab Emirates' liquefied natural gas (LNG) exports also transit the strait, representing about 19% of global LNG trade (IEA, 2026b). The U.S. Energy Information Administration (EIA, 2025) likewise reported that oil flows through Hormuz averaged about 20 million barrels per day in 2024, equivalent to approximately 20% of global petroleum liquids consumption.

The 2026 crisis has made this structural exposure unusually visible. Military escalation at the end of February produced a de facto closure of the strait and severe disruption to LNG and oil movements; a mid-June interim agreement created a framework for reopening, but normal flows had not been restored by late August (IEA, 2026a). On August 28, Reuters reported that only seven commodity vessels had transited the

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strait the previous day, below a 10-day average of 15, while negotiations continued over conditions for restoring normal navigation (Reuters, 2026c). Because the crisis remains fluid, the contemporary case evidence in this article is explicitly bounded through August 28, 2026.

This study examines the Strait of Hormuz as a contemporary case through which to analyze the relationship among maritime chokepoints, supply chain resilience, energy logistics, and sustainability policy. The central argument is that supply chain resilience cannot be understood solely through firm-level practices such as supplier diversification, safety stock, or demand forecasting. These practices are important but insufficient when the transportation corridor itself becomes unstable. Resilience must also be evaluated at the level of routes, corridors, ports, maritime governance, geopolitical coordination, and energy security.

The analysis is guided by three research questions: (1) How do disruptions in maritime chokepoints affect logistics efficiency, supply chain resilience, and energy transport reliability? (2) What economic, social, and environmental externalities emerge when global supply chains are exposed to chokepoint disruptions? (3) What managerial and policy responses can reduce supply chain vulnerability to maritime chokepoint risk?

II. BACKGROUND: THE STRAIT OF HORMUZ AS A GLOBAL LOGISTICS CHOKEPOINT

The Strait of Hormuz occupies a distinctive position in global logistics because its significance is both geographic and systemic. Geographically, it is a narrow maritime passage connecting the Persian Gulf with the Gulf of Oman and the Arabian Sea. Systemically, it functions as a critical artery for the movement of oil, LNG, and related commodities from major Gulf producers to global markets. Its stability therefore influences energy supply chains, maritime transport costs, petroleum and gas pricing, and the capacity of firms and governments to manage disruption across interconnected logistics networks.

Hormuz combines high traffic volume with limited substitutability. The IEA (2026b) reports that approximately 20 million barrels per day of crude oil and oil products moved through the strait in 2025, accounting for about one-quarter of world seaborne oil trade; approximately 80% of these flows were destined for Asia. These figures show that Hormuz is not merely one route among many. It is a core logistics corridor whose disruption can affect energy availability, freight costs, and downstream economic activity across regions.

The strait is also central to global LNG movement. According to the IEA (2026b), approximately 93% of Qatar's LNG exports and 96% of the United Arab Emirates' LNG exports transit Hormuz. This creates a particular vulnerability because LNG supply chains require specialized infrastructure, including liquefaction facilities, tankers, regasification terminals, and long-term contractual arrangements. Unlike many containerized goods, LNG cannot be rapidly shifted into alternative transport modes without substantial market, infrastructure, and contractual constraints.

Maritime chokepoints concentrate global trade flows into narrow corridors where physical geography, infrastructure, and geopolitics intersect. Notteboom et al. (2026) identify Hormuz as a chokepoint whose closure would force reliance on alternative overland routes unlikely to handle comparable volumes. Pratson (2023) shows that closures of major marine chokepoints can reroute shipping flows, create regional delays, and generate port backlogs, while Verschuur et al. (2025) quantify losses through delay, rerouting, insurance premiums, freight-rate increases, and trade disruption.

Alternative capacity around Hormuz remains limited. The IEA (2026b) estimates 3.5 to 5.5 million barrels per day of pipeline capacity with the potential to redirect crude flows around the strait, far below normal maritime volumes. Partial bypass capacity therefore reduces but does not eliminate exposure, especially for LNG and other cargoes that depend on specialized maritime infrastructure. UNCTAD (2024) similarly emphasizes that chokepoint disruptions can lengthen routes, raise operating costs and emissions, complicate capacity management, and transmit inflationary pressures to vulnerable economies.

III. LITERATURE REVIEW

A. *Supply chain resilience and disruption management*

Supply chain resilience has become a central concern in logistics and operations management because global supply chains are exposed to geopolitical conflict, natural disasters, infrastructure failures, pandemics, cyber events, and climate-related shocks. Early work conceptualized resilience as the capacity to prepare for unexpected events, respond to disruptions, and recover to either the original state or a more desirable operating condition (Christopher & Peck, 2004; Ponomarov & Holcomb, 2009). More recent scholarship expands the concept to include anticipation, absorption, adaptation, recovery, learning, and transformation (Hosseini et al., 2019; Hosseini Shekarabi et al., 2025; Ivanov & Dolgui, 2020).

A persistent issue is the tension between efficiency and resilience. Cost minimization, lean inventories, route optimization, and high asset utilization can improve performance in stable conditions while increasing exposure to disruption. Lücker et al. (2025) emphasize that resilience-enhancing and efficiency-enhancing resources interact differently across supply chain structures. Common resilience responses include inventory buffers, multi-sourcing, capacity reservation, flexible contracts, digital visibility, collaboration, redundancy, and agility (Guo et al., 2025; Hosseini et al., 2019; Tukamuhabwa et al., 2015). Yet many of these tools assume that an underlying transportation system remains usable. Chokepoint disruption challenges that assumption by making the route itself the constraint.

B. *Maritime chokepoints and transport vulnerability*

Maritime chokepoints reduce distance, cost, and transit time, but they also concentrate trade in limited geographic corridors. In stable conditions this concentration supports efficiency; under disruption it transmits risk. Recent literature therefore treats chokepoints as systemic vulnerabilities rather than isolated bottlenecks. Verschuur et al. (2025) show that chokepoint disruptions can create losses through delays, rerouting, insurance premiums, freight-rate increases, and trade disruption, while Li et al. (2024) identify technology, regulation, capacity management, stakeholder collaboration, and training as major disruption-management responses.

The Red Sea crisis provides a useful comparison. Notteboom et al. (2024) show how insecurity altered vessel operations, shipping networks, freight rates, pricing practices, and supply chain reliability. The case demonstrates that route disruption changes not only individual voyages but fleet deployment, service schedules, available capacity, and network design. Hormuz presents a related but distinct problem because it is both a maritime chokepoint and an energy chokepoint with limited substitution capacity.

C. *Energy logistics and global supply chain risk*

Energy logistics occupy a distinctive place within supply chain management because oil and natural gas are both traded commodities and enabling inputs for transportation, manufacturing, electricity generation, heating, and industrial production. Supply chain interruptions can produce operational consequences, market penalties, recovery costs, and long-term performance damage (Hendricks & Singhal, 2005; Kleindorfer & Saad, 2005). In energy logistics, such effects can cascade because fuel-price changes influence freight rates, production costs, electricity markets, purchasing, contracting, and inventory decisions.

Substitutability is also constrained. Oil and LNG supply chains depend on terminals, tankers, pipelines, storage, contracts, insurance, ports, and regulatory permissions; LNG is especially dependent on specialized liquefaction and regasification infrastructure. This limits the speed with which firms can shift modes or routes. The viability perspective of Ivanov and Dolgui (2020) is therefore relevant: prolonged corridor disruption may require supply networks to operate under sustained stress rather than simply recover after a short interruption.

D. Sustainable logistics, externalities, and policy response

Sustainable logistics traditionally emphasizes emissions reduction, fuel efficiency, optimized routing, alternative fuels, and reduced environmental damage. Chokepoint disruption shows that sustainability is also a resilience problem. Longer voyages, schedule recovery, and rerouting can increase fuel consumption, emissions, and operating costs. UNCTAD (2024) explicitly connects chokepoint resilience with green technologies, digitalization, international cooperation, investment, data intelligence, and coordination among governments, ports, shipping firms, and supply chain managers.

Recent evidence reinforces this connection. Sun et al. (2026) show that crisis-induced maritime rerouting can increase voyage duration, economic cost, and greenhouse gas emissions, while Key et al. (2024) demonstrate that chokepoint disruption can create uneven effects on production, prices, GDP, and vulnerable regions. The literature therefore places maritime chokepoints at the intersection of logistics efficiency, energy security, sustainability, and public policy. The central gap is less whether chokepoints matter than how corridor-level exposure should be integrated into supply chain resilience theory and applied to an ongoing crisis such as Hormuz.

IV. METHODOLOGY

This study uses a case-informed conceptual policy analysis supported by a thematic literature review. The purpose is not to test a statistical relationship or estimate the direct economic effects of a single disruption, but to synthesize scholarship on supply chain resilience, maritime chokepoints, energy logistics, sustainable transport, and policy response and use Hormuz as a contemporary case through which broader logistics vulnerabilities can be examined. This design is consistent with integrative and conceptual review approaches used to synthesize fields, clarify relationships, and develop frameworks (Jaakkola, 2020; Snyder, 2019; Torraco, 2005, 2016; Tranfield et al., 2003).

The review draws on systematic-review principles of transparent searching, screening, and synthesis but is not presented as a full systematic review or meta-analysis (Page et al., 2021). The 22-article academic corpus supplies the coded evidence; institutional and current-event sources are used separately to establish the Hormuz case context and update its chronology through August 28, 2026.

A. Literature search strategy

Relevant literature was identified through Google Scholar, EBSCO Business Source, Scopus, Web of Science, ScienceDirect, Taylor & Francis Online, SpringerLink, Emerald Insight, and Wiley Online Library. The search syntax was adapted to each platform, but a common Boolean logic combined resilience, chokepoint, energy, sustainability, and governance terms. Quotation marks were used for multiword phrases; OR broadened concept families; AND linked concept families; and truncation was used where the database supported it. The core search logic is summarized in Table 1.

Table 1: Core Boolean search logic

Search stream	Core Boolean expression
Resilience chokepoints	+ ("supply chain resilience" OR "logistics resilience" OR "supply chain disruption") AND ("maritime chokepoint*" OR "shipping chokepoint*" OR "Strait of Hormuz")
Comparative chokepoints	("Strait of Hormuz" OR "Suez Canal" OR "Bab el-Mandeb" OR "Panama Canal" OR "Strait of Malacca") AND (resilien* OR disruption OR rerout* OR vulnerab*)
Energy logistics	("Strait of Hormuz" OR "energy chokepoint*") AND (oil OR LNG OR "energy logistics" OR "energy security")

Search stream	Core Boolean expression
Sustainability	("maritime transport" OR shipping OR logistics) AND (sustainab* OR emission* OR externalit*) AND (disruption OR rerout* OR chokepoint*)
Governance/policy	("maritime policy" OR "shipping risk governance" OR "critical infrastructure resilience") AND (chokepoint* OR disruption OR "maritime security")

Mendeley Reference Manager was used to organize downloaded literature, remove duplicate records, store citation information, and manage annotations. Searches emphasized peer-reviewed literature from the most recent decade, particularly work published from 2020 onward, while retaining foundational resilience studies when they supplied theoretical grounding.

B. Inclusion and exclusion criteria

The academic search initially identified 36 potentially relevant articles. After title, abstract, and full-text screening for topical fit, scholarly relevance, publication quality, and direct connection to the research questions, 22 articles were retained for thematic analysis. Articles were eligible when they addressed supply chain resilience, logistics disruption, maritime transport risk, chokepoints, energy transportation, LNG or oil logistics, sustainable transport, geopolitical supply chain risk, rerouting, or policy responses to transport disruption. Purely military or diplomatic analyses were excluded unless they directly addressed commercial shipping, energy transport, maritime safety, or supply chain resilience.

Institutional sources from the IEA, EIA, UNCTAD, and related organizations supplemented the academic corpus when authoritative data were required. Reputable current reporting was used only for the bounded case chronology. These contextual sources were not included in the 22-article coded literature set.

C. Data organization and thematic coding

The 22 retained articles were organized in Mendeley and coded by the sole author using Taguette. The unit of coding was a sentence or contiguous passage expressing a discrete concept relevant to the research questions. Passages could receive more than one code when they addressed multiple concepts; consequently, coded-instance frequencies are not counts of articles and the categories are not mutually exclusive. Taguette preserved the coded excerpts and code assignments, providing an audit trail of the qualitative analysis.

Coding followed an inductive-deductive approach. Deductive codes were derived from the research questions and literature streams, including resilience, transport efficiency, route substitutability, energy security, cost escalation, environmental externalities, social risk, governance, and policy response. Inductive codes were added as recurring concepts emerged. For the five dominant categories, chokepoint dependence captured explicit discussion of route concentration, exposure, or limited substitutability; the efficiency-resilience tradeoff captured tensions between optimized routing and disruption flexibility; energy logistics captured oil/LNG movement and downstream cost transmission; sustainability and social externalities captured emissions, safety, equity, or vulnerable-economy effects; and multi-actor governance captured coordinated responses involving governments, carriers, ports, insurers, energy firms, or international organizations.

Because the coding was conducted by one researcher, intercoder agreement statistics were not applicable. The analysis therefore treats code frequencies as descriptive indicators of emphasis within the coded corpus rather than as inferential measures of theoretical importance or prevalence across the field. This single-coder design is acknowledged as a limitation; interpretive consistency was supported through explicit code definitions and retention of coded excerpts in Taguette.

D. Case context, trustworthiness, and limitations

Hormuz was selected because it combines high-volume energy movement, limited alternative capacity, geopolitical instability, commercial shipping exposure, and sustainability tradeoffs. The case is illustrative rather than a bounded single-case empirical study. Its chronology was updated through August 28, 2026, using institutional sources and reputable current reporting, while the thematic findings remain grounded in the 22-article academic corpus.

Trustworthiness was strengthened through multiple databases, explicit inclusion and exclusion criteria, retention of both recent and foundational studies, use of authoritative institutional sources for quantitative claims, and documentation through Mendeley and Taguette. Limitations include the fluid nature of the Hormuz crisis, the absence of intercoder reliability in a single-author coding design, and the conceptual rather than econometric scope of the study. The analysis does not estimate the full cost of disruption or model all possible routing and infrastructure alternatives.

V. RESULTS

The thematic analysis produced 268 coded instances across the 22 retained articles. The five most frequent categories accounted for 144 instances, or 53.7% of all coding: chokepoint dependence and structural fragility (43), the efficiency-resilience tradeoff in maritime routing (39), energy logistics and cascading cost transmission (27), sustainability and social externalities (22), and multi-actor governance (13). The remaining 124 instances were distributed across smaller categories. Frequencies are reported to describe where coding clustered within this corpus; they are not interpreted as proof that a more frequent theme is inherently more important than a less frequent one.

A. Hormuz Case status and timeline

To anchor the thematic results in the contemporary case, Table 2 summarizes the status of the 2026 Hormuz disruption through August 28, 2026. The timeline is intentionally date-bounded so that future readers can distinguish the crisis conditions observed during manuscript revision from subsequent developments.

Table 2. Strait of Hormuz case timeline through August 28, 2026

Date	Case development	Logistics relevance
Late February 2026	Regional war produced a de facto closure of the Strait of Hormuz (IEA, 2026a).	Oil and LNG transit reliability became a direct supply-chain constraint.
March 10	UNCTAD issued a rapid analysis warning of spillovers to energy markets, maritime transport, and global supply chains (UNCTAD, 2026b).	The disruption was identified as a trade and development risk, not only a security event.
April 29	Six vessels crossed in a 24-hour period compared with an estimated prewar norm of 125-140 daily passages (Saul, 2026).	Traffic collapse illustrated the scale of corridor exposure.
May 5-6	Iran announced a new mechanism for managing transit; the following day a CMA CGM vessel was attacked in the strait (Reuters, 2026a, 2026b).	Commercial passage combined regulatory uncertainty with direct vessel and crew risk.

Date	Case development	Logistics relevance
Mid-June	An interim U.S.-Iran agreement created a framework for reopening, although normal trade flows remained uncertain (IEA, 2026a).	Governance and diplomacy became explicit components of logistics recovery.
June 30	UNCTAD reported that more than 100 days of disruption had created persistent effects for vulnerable economies even as reopening was discussed (UNCTAD, 2026a).	The case showed that downstream economic effects can outlast the immediate transport interruption.
August 28	Seven commodity vessels had transited the previous day, below the 10-day average of 15, while mediation continued over restoring normal navigation (Reuters, 2026c).	The corridor remained operational only at constrained levels, underscoring incomplete recovery.

Table 3. Most frequent coded themes across the literature

Theme	Coded instances	% of all coded instances	Operational meaning
Chokepoint dependence and structural fragility	43	16.0%	Route concentration, exposure, and limited substitutability.
Efficiency-resilience tradeoff in maritime routing	39	14.6%	Tension between optimized routing and disruption flexibility.
Energy logistics and cascading cost transmission	27	10.1%	Oil/LNG movement and downstream cost or price transmission.
Sustainability and social externalities	22	8.2%	Emissions, safety, equity, and vulnerable-economy effects.
Multi-actor governance as a condition of resilience	13	4.9%	Coordinated public-private and institutional response.
Top-five theme total	144	53.7%	Dominant categories used for thematic interpretation.
Other smaller coded categories	124	46.3%	Supplementary concepts that added nuance.
Total coded instances	268	100.0%	All coded passages across the 22 retained articles.

B. Chokepoint dependence and structural supply chain fragility

Chokepoint dependence and structural fragility was the most frequently coded major category, with 43 instances (16.0% of all coding). The literature repeatedly describes chokepoints as geographic concentrations of risk: supply chains may be diversified at the supplier or carrier level while remaining concentrated at the transportation-route level. Supplier diversification therefore does not necessarily reduce exposure when multiple suppliers rely on the same corridor.

The Hormuz case makes this distinction concrete. Baseline energy flows of approximately 20 million barrels per day coexist with limited pipeline alternatives (IEA, 2026b), while observed traffic in April and August 2026

remained far below prewar passage levels (Reuters, 2026c; Saul, 2026). The case therefore supports route- and corridor-level exposure analysis as a complement to conventional firm-level resilience planning.

C. The efficiency-resilience tradeoff in maritime routing

The efficiency-resilience tradeoff appeared in 39 coded instances (14.6%). Maritime chokepoints are valuable because they reduce distance, time, fuel consumption, and transport cost under normal conditions; those same efficiencies create dependence when a corridor becomes unsafe, congested, restricted, or politically unstable. This aligns with resilience scholarship on the limits of efficiency-driven supply chain design (Christopher & Peck, 2004; Lückner et al., 2025).

Hormuz illustrates the difference between limited mitigation and true redundancy. Some crude oil can bypass the strait through pipelines, but available capacity is far below normal maritime flow and does not provide an equivalent substitute for LNG (IEA, 2026b). The crisis therefore shows that a route may be economically optimal in normal conditions yet remain structurally difficult to replace during prolonged disruption.

D. Energy logistics and cascading cost transmission

Energy logistics and cascading cost transmission appeared in 27 coded instances (10.1%). Oil and LNG are both cargo and enabling inputs, so disruption can affect tanker movement and insurance directly while also influencing freight rates, electricity costs, production costs, consumer prices, and inflation expectations. This makes energy chokepoints a mechanism through which maritime risk can spread well beyond firms that physically use the corridor.

The 2026 case also demonstrates adaptation. The IEA (2026a) reported that LNG prices in Asia and Europe rose sharply after the closure, but additional non-Gulf LNG output offset roughly three-quarters of the decline in Gulf deliveries from March through June. Demand-side fuel switching and lower consumption also helped rebalance markets. The result is a more qualified interpretation: Hormuz exposure can create severe price and supply pressure, but the ultimate outcome depends on substitution, inventories, demand response, and the duration of disruption.

E. Sustainability and social externalities

Sustainability and social externalities appeared in 22 coded instances (8.2%). Chokepoint disruption can extend voyage distances, increase fuel use and emissions, expose seafarers to danger, and raise transport and energy costs for households and vulnerable economies. Crisis responses may therefore preserve movement in the short term while creating additional environmental and social costs (Sun et al., 2026; UNCTAD, 2024).

The Hormuz case extends these concerns beyond vessel operations. UNCTAD (2026a) reported that more than 100 days of disruption had left economic aftershocks that could persist after reopening and identified 61 vulnerable economies exposed to combined oil and cereal-import shocks. This case linkage reinforces the need to evaluate corridor resilience through economic, environmental, and social outcomes rather than shipping continuity alone.

F. Multi-actor governance as a condition of chokepoint resilience

Multi-actor governance appeared in 13 coded instances (4.9%). Although least frequent among the five dominant categories, it is conceptually important because firms cannot independently guarantee safe passage through shared maritime corridors. Chokepoints are shaped by international law, naval security, commercial shipping, insurance markets, ports, energy contracts, diplomacy, and public policy.

The case chronology illustrates this dependence on governance. A mid-June interim agreement was intended to provide a framework for reopening, while late-August mediation continued over the conditions needed to restore normal navigation (IEA, 2026a; Reuters, 2026c). Thus, operational recovery depends not only on firm preparedness but also on public-private coordination, diplomatic arrangements, maritime security, and market confidence.

G. *Conceptual synthesis*

Taken together, the five categories suggest a sequence rather than a ranking of importance. Chokepoint exposure creates the structural condition for disruption; operational consequences then appear through delay, rerouting, capacity loss, insurance changes, and safety risk. These consequences can cascade into energy prices, emissions, inventory shortages, and social effects. Firm, market, and government responses moderate the pathway and shape whether the system absorbs the shock, adapts, recovers, or experiences prolonged impairment.

This sequencing helps explain why coding frequency alone cannot determine substantive importance. Governance appeared less often than structural fragility, for example, yet the 2026 case shows that governance can become decisive for reopening and recovery. The results therefore use frequencies as descriptive organization while interpreting the themes relationally.

VI. DISCUSSION

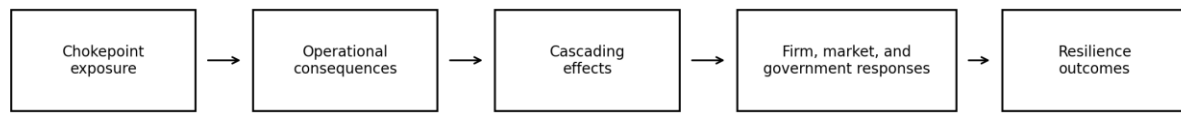
The analysis supports a corridor-level extension of supply chain resilience. Firm-level resilience asks whether organizations can absorb and recover from disruption; network-level resilience asks whether relationships and flows can be reconfigured. Corridor-level resilience asks whether the physical routes supporting those flows remain usable, substitutable, visible, and governable under stress. A supply chain can therefore be diversified at the supplier level while remaining concentrated at the route level.

A. *Corridor resilience as a level of analysis*

This distinction is particularly important for Hormuz because the corridor combines high throughput, specialized energy infrastructure, limited bypass capacity, and geopolitical exposure. Conventional tools such as safety stock, supplier diversification, and visibility can reduce selected risks, but they cannot by themselves restore a constrained waterway. Corridor resilience complements rather than replaces existing firm- and network-level resilience concepts by locating an additional source of dependency in transport geography and infrastructure.

B. *Chokepoint exposure-response-resilience framework*

Figure 1 develops the conceptual pathway suggested by the review and case evidence. Chokepoint exposure is shaped by throughput dependence, substitutability, and hazard conditions. Disruption produces operational consequences such as delay, rerouting, capacity loss, insurance changes, and crew risk. These can generate cascading economic, environmental, and social effects. The eventual resilience outcome is moderated by firm responses, market adjustment, and government action rather than determined by exposure alone.



Exposure does not determine outcome; adaptation, substitution, pricing, and policy responses moderate the pathway.

Figure 1. Chokepoint exposure-response-resilience framework

C. Boundary conditions and adaptive market response

A corridor-level perspective should not imply that every chokepoint disruption produces persistent systemic failure. Markets and supply chains can adapt through inventories, rerouting, production substitution, fuel switching, demand reduction, spare capacity, and price signals. Verschuur et al. (2025) note that some chokepoint disruptions can be buffered through inventories and emergency strategies, while more severe disruptions may require transport-mode or production substitution. Historical energy-market evidence likewise shows that coordinated producer actions and strategic stock releases can materially reduce price volatility during major shocks (Almutairi et al., 2025).

The 2026 Hormuz case displays both vulnerability and adaptation. The IEA (2026a) reports that non-Gulf LNG growth offset much of the decline in Gulf deliveries through June and that demand-side adjustments helped rebalance markets. By late August, oil prices were also responding to expectations that more supply could move through the corridor even though vessel traffic remained constrained (Reuters, 2026c). These countervailing mechanisms do not eliminate chokepoint risk; they identify the boundary conditions under which exposure becomes a short-lived shock, a costly adaptation problem, or a prolonged system-level disruption.

D. Contribution to logistics and supply chain scholarship

The study contributes in three related ways. First, it treats corridor resilience as a distinct complement to firm- and network-level resilience. Second, it integrates energy logistics into supply chain risk by showing how a maritime corridor can transmit effects through fuel, freight, production, and consumer markets. Third, it links resilience and sustainability by showing that disruption responses can alter emissions, safety, equity, and vulnerable-economy exposure. The Hormuz case is therefore useful not because it proves inevitable collapse, but because it reveals the mechanisms through which corridor exposure, adaptation, and governance jointly shape logistics outcomes.

VII. MANAGERIAL AND POLICY IMPLICATIONS

A. Implications for Supply chain managers

Supply chain managers should expand resilience planning beyond supplier diversification and inventory buffers to include route-exposure analysis. This means identifying whether critical commodities, suppliers, or energy inputs depend on corridors such as Hormuz, Suez, Panama, Bab el-Mandeb, or Malacca and assessing indirect exposure through fuel costs, supplier energy dependence, freight surcharges, insurance, and customer price sensitivity.

Chokepoint-specific scenario planning should consider partial disruption, full closure, restricted passage, rerouting, increased insurance premiums, and energy-price volatility. This encourages a risk-adjusted view of logistics strategy in which the least-cost route under normal conditions is not automatically treated as the most resilient option.

B. Implications for logistics, maritime, and energy firms

Logistics providers, maritime carriers, and energy firms should strengthen corridor-level monitoring, customer communication, contingency routing, and service-flexibility protocols. Digital visibility must go beyond vessel tracking to interpret what route disruption means for cost, timing, safety, emissions, and contractual commitments. Crew safety, emergency communication, and crisis support should also be treated as part of logistics resilience.

Energy firms and energy-dependent industries should evaluate exposure through export routes, LNG infrastructure, tanker availability, insurance, contractual obligations, fuel prices, electricity prices, and downstream cost effects. Firms outside the energy sector may be exposed indirectly even when they never ship through Hormuz.

C. Policy implications

Maritime chokepoint resilience cannot be achieved by individual firms alone. Governments and international organizations should strengthen early-warning systems, vessel and threat information sharing, maritime-security coordination, and assessment of ports, pipelines, storage, and alternative routes. Energy-security policy should likewise integrate logistics vulnerability through strategic reserves, import diversification, emergency fuel planning, and regional cooperation.

D. Implications for sustainable logistics and future research

Sustainable logistics should evaluate resilience under both routine and crisis conditions. Chokepoint disruption can increase voyage distances, fuel use, emissions, insurance costs, seafarer risk, and consumer price pressures. Future research should compare corridor-level resilience across Hormuz, Suez, Panama, Bab el-Mandeb, and Malacca and examine energy-price transmission, rerouting emissions, public-private coordination, and how firms incorporate route risk into procurement and enterprise risk management.

VIII. CONCLUSION

The Strait of Hormuz provides a timely case for examining how maritime chokepoints shape global logistics, supply chain resilience, energy security, and sustainability policy. Its role in oil, LNG, and commercial shipping illustrates how supply chains can be efficient under stable conditions yet remain exposed when critical physical corridors become constrained.

The thematic review of 22 articles identified five dominant categories within 268 coded instances: structural chokepoint dependence, the efficiency-resilience tradeoff, energy-cost transmission, sustainability and social externalities, and multi-actor governance. The frequencies organize the coded corpus descriptively rather than ranking the theoretical importance of themes. When connected to the 2026 case, the categories show a sequence from exposure to operational consequences and cascading effects, moderated by firm, market, and government responses.

The central contribution is a corridor-level perspective on resilience. Supplier diversification, inventory, flexibility, and visibility remain important, but they may be insufficient when multiple supply chain actors depend on the same constrained route. At the same time, the case shows that disruption does not automatically imply collapse: substitution, inventories, demand adjustment, strategic reserves, and market adaptation can absorb part of the shock.

The contemporary case evidence is bounded through August 28, 2026, and subsequent developments may alter the specific status of the strait. The broader implication is less time-sensitive: resilient supply chains depend not only on firms and networks, but also on the stability, substitutability, and governance of the corridors through which global commerce moves.

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Hormuška ožina kot stresni test odpornosti oskrbovalnih verig: pomorska ozka grla, energetska logistika in trajnostna politika

Izvleček – Hormuška ožina je ena od strateško najpomembnejših pomorskih ozkih grl na svetu, prek katere poteka znaten delež svetovne trgovine z nafto in utekočinjenim zemeljskim plinom. Ta študija na podlagi analize konkretnih primerov in tematskega pregleda 22 strokovno recenziranih člankov preučuje, kako motnje v ozkih grlih prenašajo tveganje po globalnih oskrbovalnih verigah. V procesu kodiranja je identificiranih 268 kodiranih primerov; pet prevladujočih kategorij predstavlja 53,7 % celotnega števila in se nanaša na strukturno odvisnost od ozkih grl, kompromis med učinkovitostjo in odpornostjo, prenos stroškov energije, trajnost in družbene zunanje učinke ter upravljanje z več akterji. Motnja v Hormuški ožini leta 2026 je uporabljena kot časovno in vsebinsko omejen sodobni primer, za povezovanje tem, izpeljanih iz literature, z opaženimi učinki na logistiko in energetske trge. Študija razvija okvir odpornosti na ravni koridorja, v katerem izpostavljenost pomorskemu ozkemu grlu povzroča operative posledice in kaskadne učinke, ki jih blažijo odzivi podjetij, trgov in vlad. Prispevek postavlja odpornost koridorjev kot posebno dopolnitev odpornosti oskrbovalnih verig na ravni podjetij in omrežij.

Ključne besede – Hormuška ožina, pomorska ozka grla, odpornost oskrbovalnih verig, trajnostna logistika