

The Strategic Importance of Maritime Choke Points on Global Trade and Economy (Case Study of Maritime Straits and Canals)

Sihem Harfouche¹ / Laboratory of Partnership and Investment in Small and Medium Enterprises in the Euro-Maghreb Area Commercial Sciences, Commercial Department, Faculty of Economics Commerce and Management Sciences, Setif, Algeria,
sihemharfouche@yahoo.fr

Received: 20/04/2025

Accepted: 17/05/2025

Published : 05/06/2025

Abstract:

Maritime Choke Points play a pivotal role in shaping the dynamic of global trade and economic stability. These narrow passages, such as straits and canals, serve as critical conduits for the transportation of goods, particularly energy resources and food, between major global markets. This paper explores the strategic significance of maritime choke points in the international economy, focusing on key straits and canals including the Strait of Malacca, the Strait of Hormuz, the Suez Canal, and the Panama Canal... ect. Through a case study approach, the research examines how disruptions in these passages can lead to widespread economic repercussions, including increased shipping costs, supply chain delays, and heightened geopolitical tensions. By analyzing maritime traffic data, historical incidents, and geopolitical contexts, the study highlights the necessity of securing these vital routes for maintaining global economic resilience and uninterrupted trade flow.

Keywords: Maritime Choke Points, Straits, Canal, Global Trade, Supply Chain Delays, Suez Canal, Panama Canal, Bab El Mandeb Strait, Malacca Strait, Hormuz Strait

Jel Classification Codes : F19 ; F51 ; L99 ; N7 ; Q49 ; R49

Résumé:

Les points de passage maritimes stratégiques jouent un rôle central dans la configuration des dynamiques du commerce mondial et la stabilité économique internationale. Ces passages étroits, tels que les détroits et les canaux, constituent des corridors essentiels pour le transport de marchandises, en particulier les ressources énergétiques et alimentaires, entre les marchés mondiaux. Cet article examine l'importance stratégique des points de passage maritime dans l'économie internationale en se concentrant sur des détroits et canaux clés tels que le détroit de Malacca, le détroit d'Hormuz, le canal de Suez, le canal de Panama...etc.

la recherche analyse comment des perturbations dans ces passages peuvent entraîner des répercussions économiques à grande échelle, notamment une hausse des coûts d'expédition, des retards dans la chaîne d'approvisionnement, ainsi qu'une intensification des tensions géopolitiques. En s'appuyant sur l'analyse des données de Trafic maritime, des incidents historiques et des contextes géopolitiques, l'étude met en lumière la nécessité de sécuriser ces voies de navigation vital afin de préserver la résilience de l'économie mondiale et d'assurer la continuité des échanges commerciaux

Mots clés: Points de passages maritime, Détroits, Canaux, Commerce mondial, Retards de chaîne d'approvisionnement, Canal de Suez, Canal de Panama, Détroit de Bab el-Mandeb, Détroit de Malacca, Détroit d'Hormuz.

Jel Classification Codes : F19 ; F51 ; L99 ; N7 ; Q49 ; R49.

¹. Corresponding author: Sihem Harfouche, e-mail address: sihemharfouche@yahoo.fr

I. Introduction

Maritime straits and canals are among the most critical arteries in the global trade network due to their pivotal role in linking international markets and facilitating the movement of goods and resources across continents. Despite significant advancements in transportation methods and logistics technologies, these waterways remain foundational components of the global economic infrastructure, with a substantial portion of international trade—particularly in energy and raw materials—passing through them.

1-Research Problem

The central question this study seeks to address is: *To what extent do maritime straits and canals impact the international economy, and what is the nature of the relationship between these waterways and the stability of global trade flows?* Geopolitical crises or natural disasters that disrupt these passages repeatedly raise concerns about the vulnerability of the global trade system and its dependence on narrow, high-risk maritime routes.

2-Research Hypotheses

This study is guided by the following hypotheses:

- Maritime straits and canals play a decisive role in reducing transportation costs and enhancing the efficiency of international trade.
- Any disruption to the security or continuity of these maritime passages leads to direct economic impacts on both importing and exporting countries.
- There is a positive correlation between the effective management of these routes and the stability of global markets, particularly in the energy and food sectors.

3-Research Objectives

The objectives of this study are to:

- Analyze the economic role of maritime straits and canals in facilitating global trade.
- Assess their impact on the stability of energy and strategic commodity markets.
- Examine the security and political challenges threatening the continuity of these maritime corridors.
- Provide recommendations to enhance maritime governance and ensure the safety of vital trade routes.

4-Significance of the Study

The importance of this study stems from its timely relevance and global context. Rising geopolitical tensions in key maritime chokepoints—such as the Strait of Hormuz, the Taiwan Strait, and the Suez Canal—highlight the urgent need for a deeper understanding of their economic significance. As nations increasingly

seek to secure their economic and energy interests, this study offers critical insights for economic policymakers and logistics strategists.

5-Literature Review

Several previous studies have examined the significance of maritime straits and canals from various perspectives. Rodrigue (2015) focused on the geographic and logistical dimensions of these routes, while the Chatham House report (2017) emphasized their strategic influence on global energy security. Other works, such as Klein (2020), have addressed the environmental and security-related challenges facing these crucial points. However, many of these studies tend to focus on technical or security aspects, often lacking a comprehensive analysis of their broader economic impact—a gap this research aims to address and build upon.

II. Overview of Maritime Choke Points

II.1 Strategic Maritime Choke Points

1- Definition of Maritime Choke Points

Choke points are waterways defined as conduits that connect two bodies of seawater. These conduits may be of natural origin, exemplified by maritime straits, or of anthropogenic origin, constituting what are known as maritime canals (Awad Khalifa, 2013, p. 141). And this concept is borrowed from military parlance where it denotes strategically vital, impassable terrain, undergoes significant modification when applied to energy trade. Specifically, the maritime transport of oil is characterized by several critical choke points.

Chokepoints are a key concept in transport geography, referring to locations where the flow of movement is restricted and difficult—if not impossible—to bypass. As a result, any alternative route typically involves significant detours, higher financial costs, and longer delays. These chokepoints can also be viewed as strategic resources, with their importance shifting depending on changes in transportation patterns. Due to the nature of maritime transport, chokepoints are especially common at sea. Some are shaped by natural geographic constraints, while others—such as the Suez and Panama Canals—are man-made. They are three fundamental ideas define what makes a chokepoint a valuable resource (Rodrigue, 2015, pp. 3-4):

- **Physical Characteristics:** Fundamentally, a chokepoint is defined by its physical attributes, which compel the convergence of maritime traffic and impose limitations on flow capacity. These constraints may arise from factors such as depth, width, or overall navigability. As a result, the chokepoint possesses an inherently limited capacity to facilitate maritime circulation.
- **Usage:** the strategic value of a chokepoint is directly related to the volume

of traffic it accommodates and the extent to which viable alternatives exist. As a chokepoint inherently restricts circulation, it establishes an upper threshold for usage. When traffic approaches or reaches this threshold, the chokepoint is increasingly perceived as operating at or near capacity, thereby diminishing its functional efficiency and signaling a state of resource saturation.

- **Access:** As a strategic resource, a chokepoint necessitates a degree of control to ensure regulated and secure access. This often involves the establishment of legal and institutional frameworks governing its use, which may include international agreements or, in cases of contested access, potential conflict. When the chokepoint lies within a clearly defined jurisdiction, the governing authority may impose tolls or fees, particularly when access is managed through infrastructure such as locks or canals.

Although oceans encompass more than 70% of the Earth's surface, commercial shipping routes remain highly concentrated along specific corridors. Strategic chokepoints—such as straits, capes, canals, and maritime passages—are narrow waterways where major sea routes converge due to geographical constraints. These chokepoints play a critical role in facilitating global trade, making them of considerable strategic and economic importance. This study will focus on maritime straits and canals as key components of international shipping infrastructure, highlighting their significant influence on the global economy and the flow of international commerce.

A maritime canal constitutes an artificial waterway that connects two seas, facilitating the reduction of transit distances for transoceanic vessels. Unlike natural waterways, these canals are engineered by sovereign states and are designated as international waterways, irrespective of their breadth. Situated within the territorial confines of a single nation possessing coastlines on two distinct seas, these canals do not traverse the littoral zones of multiple states. The right of passage through these canals is universally guaranteed, entailing continuous and uninterrupted transit exclusively for maritime vessels, excluding aircraft and precluding activities such as fishing or scientific research. Sovereign states within whose territories these canals are located are entitled to impose tariffs on the transit of foreign vessels. (Bouzeraa, 2024, p. 64).

Geographically, a strait is defined as a narrow channel connecting two larger bodies of water, such as seas or oceans. Its formation can result from tectonic fracturing, inundation of low-lying terrain, or erosional processes, ultimately establishing a link between previously contiguous landmasses now separated. (Abu Luqma & Al Awar, p. 163)

"The criteria for a strait to be classified as international include: (Bouzeraa, 2024, p. 72)

- The strait's width must not exceed twice the territorial sea of one or more states.
- It must connect two bodies of water, irrespective of their specific classification.
- It must be utilized for maritime navigation as a fundamental requirement.

2- Strategic and Security Importance of Maritime Choke Points

Strategic straits and canals represent a crucial geographical element that significantly influences both regional and global power dynamics due to their strategic value in communication, economics, military operations, and geopolitics. The states and powers that control these straits often leverage them as instruments of foreign policy. General Gorshkov, the prominent commander of the modern Soviet navy, asserted that during peacetime, possessing control over strategic straits enables rapid and decisive action in times of crisis. (Abu Luqma & Al Awar, 1992, p. 164)

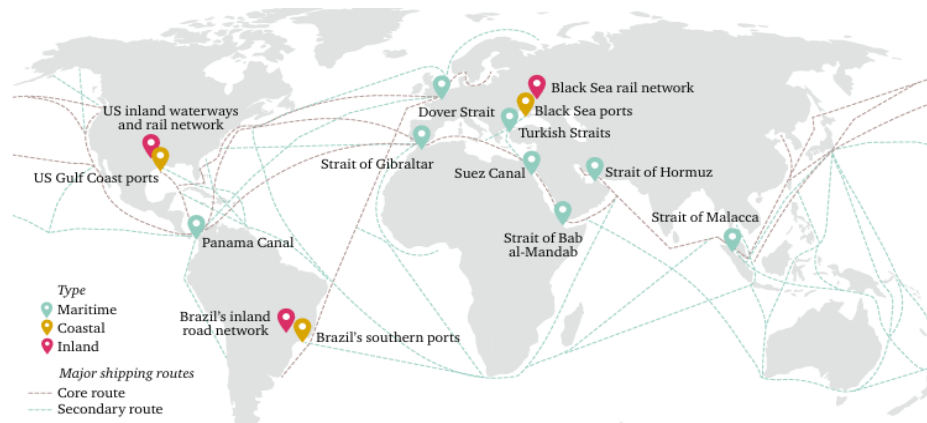
Today, the significance of straits is particularly pronounced in the realm of international maritime trade. Nations with substantial commercial interests especially those heavily reliant on crude oil imports- express concern over the possibility that access to vital maritime routes could be obstructed- whether through military conflict or strategic blockades, by land or sea. Given their critical function, straits and canals hold immense geopolitical importance and serve as instruments through which states can project both domestic and international influence, thereby shaping their overall geopolitical standing. (Dastjerdi & Nasrabad, 2021, p. 267_268)

3- Some Major Maritime Choke Points

There are several critical geostrategic chokepoints around the world through which a substantial portion of global trade transits. Disruptions at any of these locations have the potential to trigger significant and unpredictable fluctuations in prices. While these chokepoints are generally secure—maintained and monitored through international cooperation, given their centrality to global economic stability—any uncertainty regarding maritime security can lead to market volatility.

The following figure illustrates the most important choke points in the world:

Fig.(01): maritime, coastal and inland choke points and major shipping route



Source: (Bailey & Wellesly, 2017, p. 2)

3-1 Strait of Hormuz: the strait of Hormuz is widely regarded as the most critical and geopolitically sensitive maritime chokepoint globally, particularly due to its role as the sole sea passage into and out of the Persian Gulf. The absence of viable alternative maritime routes further amplifies its strategic significance. Geographically, the strait is bordered by Iran to the north and the United Arab Emirates (UAE) and Oman to the south, with its narrowest section-approximately 21 miles wide- situated between Iran's Bandar Abbas port and Oman's Kumzar Island. approximately 30% of the world's crude oil and an equivalent proportion of global liquefied natural gas (LNG) shipments transit through the Strait of Hormuz annually. Moreover, several member states of the Gulf Cooperation Council (GCC) are among the most food-import-dependent nations globally, heightening their vulnerability to any disruption in maritime traffic. Given these factors, the Strait of Hormuz represents both a vital artery of global trade and a focal point of potential geopolitical tension. (Gunathilake, 2021, p. 4)

3-2 Strait of Malacca: the strait of Malacca is bordered by three coastal nations: Indonesia, Malaysia, and Singapore. It is considered one of the most critical maritime chokepoints, linking the Indian Ocean to the Pacific Ocean through the South China Sea. Often referred to as the world's longest strait, it stretches approximately 800 km in length, with a width ranging from 50 km to 320 km, and narrows to just 2.8 km at its tightest point, featuring a minimum channel depth of 23 meters. According to Chatham House (2017), the Strait of Malacca serves as a key maritime chokepoint in Asia, providing vessels with the shortest shipping route between the Persian Gulf and major Asian markets such as China, Japan, South Korea, and other Pacific nations (Gunathilake, 2021, p. 5).

3-3 Strait of Gibraltar: Geographically, the Strait of Gibraltar is a narrow and strategic waterway separating Europe and Africa, connecting the Mediterranean Sea to the Atlantic Ocean. Although the strait's southern coast lies along Morocco, the northern entrance is flanked by Spanish territory and the British-held Gibraltar. Spain

also maintains influence over parts of northern Morocco, contributing to the complex geopolitical dynamics of the region. Approximately 300 cargo vessels pass through the Strait of Gibraltar daily, highlighting its critical importance as a global maritime chokepoint. Despite the dense marine traffic and the resulting noise pollution, the waters remain rich in marine life, particularly dolphins and whales (Mehadi, Saief Uddin, & Kazi, 2024, p. 117).

3-4 Strait of Bab el-Mandeb: Bab el-Mandeb Strait is vital choke point which is link between the Red sea and Arabian Sea and ultimately to the Indian Ocean. Geographically, it has situated between horn of Africa and Middle East. Similarly, this choke point belongs to strait countries of Yemen, Djibouti and Eritrea. The Bab el-Mandeb strait is 18 miles width at its narrowest point and demarcates 2mile width channel for inbound and outbound ship 4 movements which is limiting ships traffic in the Strait. Therefore, instability or disruption of the Bab el-Mandep Strait could force ships have to travel around the Southern tip of the Africa. Moreover, this straits vital for foods and oil transportation from east to west via Suez Canal (Gunathilake, 2021, p. 4_5).

II.2 The role of Choke Points in global trade and economy

Choke Points have evolved into significant hubs for inter-regional interaction, supporting diverse objectives encompassing military strategy, expedited communication, and multifaceted economic activities, including transit trade and tourism. However, they also present vulnerabilities to national security through potential involvement in smuggling and illegal migration, necessitating rigorous monitoring. (Abu Luqma & Al Awar, p. 164)

2-Influence of Choke Points on flow energy resources

Table (01): Volume of crude oil and petroleum liquids transported through world chokepoints and the Cape of Good Hope, 2018–2023
million barrels per day

Location	2018	2019	2020	2021	2022	2023
Strait of Malacca	23.0	23.1	22.8	21.9	22.9	23.7
Strait of Hormuz	21.4	20.0	18.4	19.0	21.1	20.9
Suez Canal and SUMED Pipeline	6.4	6.2	5.3	5.1	7.3	8.8
Bab el-Mandeb	6.4	6.0	5.2	5.4	7.5	8.6
Danish Straits ^a	3.3	3.4	3.1	3.1	4.2	4.9
Turkish Straits (Dardanelles)	3.4	3.5	3.3	3.4	3.2	3.4
Panama Canal ^b	1.4	1.5	1.7	1.8	2.1	2.1
Cape of Good Hope	7.6	7.5	7.7	7.0	5.9	6.0
World maritime oil trade	78.5	78.2	73.0	74.3	76.2	77.5
World total oil supply	100.1	100.9	91.6	97.6	99.9	101.9

Source: (U.S. Energy Information Administration, 2024, p. 1)

This table details the flow of oil through critical maritime chokepoints and the Cape of Good Hope, an alternative shipping route. We observe that the Strait of Malacca remains the most significant maritime chokepoint by volume, with consistently high throughput ranging from 21.9 million barrels per day (mb/d) in 2021 to 23.7 mb/d in 2023, underscoring its vital role in linking the Indian and Pacific Oceans and supporting East Asia's energy needs. The Strait of Hormuz follows closely as the second most critical chokepoint, with oil flow volumes showing more noticeable fluctuations—dropping to 18.4 mb/d in 2020 before rebounding to 20.9 mb/d in 2023—largely influenced by geopolitical instability in the Middle East. The combined route of the Suez Canal and Egypt's SUMED pipeline demonstrates a clear upward trend, increasing from 6.4 mb/d in 2018 to 8.8 mb/d in 2023, reflecting greater reliance on this route as a shortcut between Asia, Europe, and North America. Similarly, the Bab el-Mandeb Strait, at the southern end of the Red Sea, saw volumes rise from 6.4 mb/d to 8.6 mb/d over the same period, emphasizing its growing significance for oil bound for Europe and North America via the Suez Canal. The Danish Straits, linking the Baltic and North Seas, also experienced a steady increase in traffic—from 3.3 mb/d in 2018 to 4.9 mb/d in 2023—suggesting enhanced flow to and from Baltic ports. Meanwhile, the Turkish Straits (Dardanelles and Bosphorus), connecting the Black Sea to the Mediterranean, maintained relatively stable volumes, fluctuating slightly between 3.2 and 3.5 mb/d. In contrast, the Panama Canal consistently handled the lowest oil volumes among these chokepoints, limited by its inability to accommodate very large crude carriers (VLCCs), with flows ranging from 1.4 to 2.1 mb/d—though a modest increase may indicate more refined product or smaller crude shipments. As an alternative route, the Cape of Good Hope saw a generally declining trend in oil volumes, dropping from 7.6 mb/d in 2018 to 6.0 mb/d in 2023, likely due to increased reliance on the more direct and cost-efficient Suez Canal and SUMED pipeline.

2-2 Shortcut distances: refer to the difference in nautical miles between direct shipping routes that pass through key maritime chokepoints and alternative detour routes that bypass them. For the purpose of this analysis, it is assumed that all vessels aim to follow the shortest available navigational path.

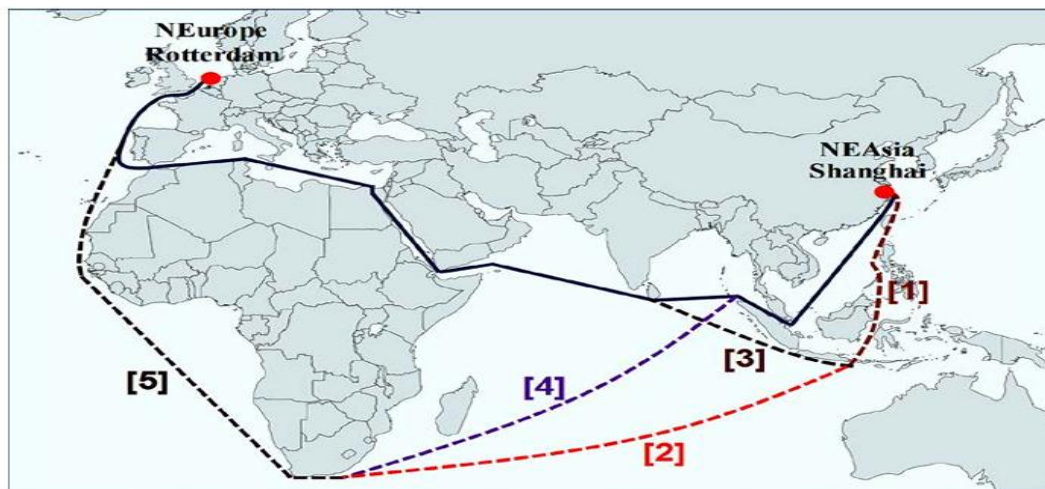
Figure 2 illustrate various route options and their respective distances between Shanghai (a major Northeast Asian port) and Rotterdam (a principal Northern European port). The selected routes vary based on vessel size. For ships classified under the Suezmax category, the standard route—marked in blue—extends approximately 10,600 nautical miles, passing through the Strait of Malacca and the Suez Canal.

Should the Strait of Malacca become inaccessible, vessels must divert via the Lombok Strait, resulting in a longer distance of approximately 11,813 nautical miles (Routes [1] and [3]). Although the Sunda Strait presents another possible detour, it poses multiple navigational risks, including strong tidal currents, shifting sandbanks, frequent low visibility due to squalls, a nearby active

volcano, as well as the presence of oil rigs, reefs, and numerous small islands—all of which complicate safe passage.

For vessels too large to transit the Suez Canal—such as Very Large Crude Carriers (VLCCs) and Very Large Ore Carriers (VLOCs)—the alternative route proceeds around the Cape of Good Hope, covering a distance of approximately 13,602 nautical miles (Routes [4] and [5]). If both the Suez Canal and the Strait of Malacca are inaccessible, the detour route can extend up to 14,529 nautical miles, significantly increasing transit time and fuel costs (Akakura & Ono, 10-13 June 2020, p. 7).

Fig.(02): Examples of ship travel route



Source: (Akakura & Ono, 10-13 June 2020, p. 7)

III.3 Risk and disruption of Choke Points

A blockage or disruption would compel tankers to reroute over significantly longer distances, increasing transit times and shipping costs. The major oil transit chokepoints are outlined below, ranked according to the volume of flow.

Table (01): Disaster/ Incident ta Choke Points

Year	Chokepoint	Disaster/Incident	Impact on Chokepoint
1956	Suez Canal	Suez Crisis	Canal was closed for 10 months
1967	Suez Canal	Arab-Israeli War	Canal was closed for 8 years
1989	Panama Canal	Invasion of Panama	Canal was closed for 1 day
1997	Malacca Strait	Ship (Oil Tanker) Collision	Oil recovery efforts spanned 1 month
2012	Panama Canal	Heavy Rain and Flood	Canal was impassable for 17 hours
2018	Suez Canal	Multi-Ships Grounding and Collision	Canal was impassable for 2 days
2019	Hormuz Strait	Political Conflict	Attack against Tanker/Risk of Blockade

Source: (Bailey & Wellesly, 2017, p. 2)

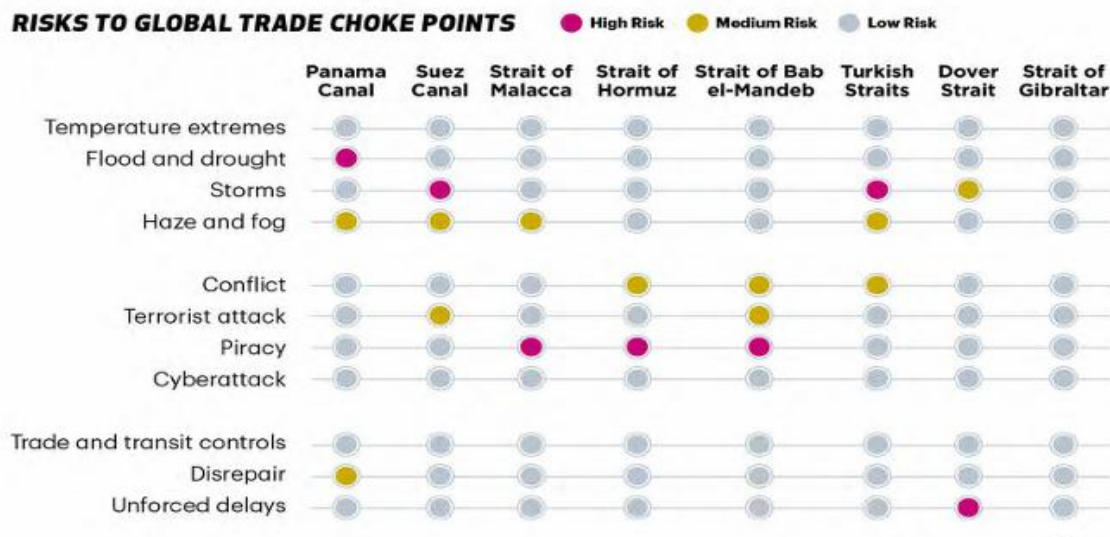
Choke points are strategically significant, narrow passages that link two larger bodies of water, playing a crucial role in maritime trade. Typically manifested as

straits or canals, these routes handle substantial volumes of shipping traffic due to their geographically advantageous positions. However, their strategic importance is accompanied by considerable risk.

- **Structural risks** arise when narrow passages hinder navigation, as seen in the recent Suez Canal obstruction, where a grounded vessel led to a prolonged disruption in global trade.
- **Geopolitical risks** are equally pressing, as choke points become vulnerable targets for blockades or intentional interference during periods of political instability.

The nature and severity of these risks vary by location. The following section explores key vulnerabilities associated with eight of the world's most critical maritime choke points.

Fig.(02): Choke Points Risks



Source: (Ang, 2021, p. 18)

IV. Conclusion

The analysis of key maritime choke points such as the Strait of Hormuz, the Suez Canal, the Strait of Malacca, and the Panama Canal underscores their indispensable role in shaping global trade dynamics and geopolitical strategies. These narrow passages, though geographically limited, hold outsized influence over the flow of energy resources, goods, and economic stability. As global interdependence deepens, the vulnerability of these choke points to disruption—be it from geopolitical tension, piracy, environmental hazards, or infrastructural

bottlenecks—poses significant risks to economic continuity and international security.

Through this case study, it becomes evident that control, access, and security of maritime choke points are not merely issues of national interest but central to global economic governance. The convergence of economic, political, and strategic interests in these regions necessitates a collaborative international approach to safeguard these transit routes. Moreover, as global trade continues to evolve with emerging technologies, climate change impacts, and shifting power balances, the strategic calculus surrounding choke points will also transform.

Future efforts must focus on enhancing the resilience of global supply chains, investing in alternative routes and infrastructure, and promoting diplomatic mechanisms to mitigate conflict. Understanding and addressing the complexities of choke point security is not only vital for maintaining the free flow of trade but also for ensuring long-term global economic stability and peace.

V. References:

Références

- Abu Luqma, A., & Al Awar, M. (1992). *Maritime Geography* (2 nd Edition ed.). Libya: Al jamahiriyah House.
- Akakura, Y., & Ono, K. (10-13 June 2020). Estimation of Economic Benefit of Major Chokepoint on Global Trade and Economy Is the benefit of the Malacca Strait larger than that of the Suez/Panama Canal? *IAME 2020 CONFERENCE*. HONG KONG: IAME.
- Ang, C. (2021). MAPPING THE WORLD'S KEY MARITIME CHOKE POINTS. *Geography Bulletin*, 53(3), 18.
- Awad Khalifa, A. (2013). *International Law of the Sea - A Study in Light of the Provisions of the United Nations Convention on the Law of the Sea*. Alexandria: New University house.
- Bailey, R., & Wellesly, I. (2017). *Chokepoints and Vulnerabilities in Global Food Trade*. Chatham House.
- Bouzeraa, M. (2024). The Strait's Maritime Geopolitics and its Impact on International Relations: A Case Study of the Strait of Malacca(Doctorat Thesis). Faculty of Law and Political Science, Skikda : University 20 august 1955.
- Dastjerdi, H. K., & Nasrabad, N. H. (2021). Role of Malacca Strait With Geopolitical and Strategic Approach. *Geopolitic Quarterly*, 16(4), p. 267_268.
- Gunathilake, C. (2021, 10 07). *MARITIME CHOKE POINTS AND ITS IMPACTS ON GLOBAL ECONOMY IF*. Retrieved from Researchgate: https://www.researchgate.net/publication/355127192_MARITIME_CHOKE_POINTS_AND_ITS_IMPACTS_ON_GLOBAL_ECONOMY_IF_DISTURBED?enrichId=rgreq-5640d99602e4b7c181775c7a63c0ada9-XXX&enrichSource=Y292ZXJQYWdlOzM1NTEyNzE5MjBUzoxMDc2MjkzMjIzMzYyNTYyQDE2MzM2MTk3MDk1Mj



- Mehadi, A. M., Saief Uddin, A., & Kazi, S. S. (2024, august). Control over Maritime Chokepoints an Assurance of Secure Lifeline. *Bangladesh Maritime Journal*, 3(issue 1), p. 117.
- Rodrigue, J.-P. (2015, July). Straits, Passages and Chokepoints: A Maritime Geostrategy of Petroleum Distribution. *Les Cahiers de Geographie du Quebec, Special Issue*, pp. 3-4.
- U.S. Energy Information Administration, U. (2024). *Country Analysis Brief: World Oil Transit*. Washington: U.S. Department of Energy.