

# Research on Navigation Security in the Red Sea Region and the Stability of International Trade Routes

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**Abstract:** The Red Sea region, as a critical waterway connecting the Indian Ocean and the Mediterranean Sea, plays a pivotal role in the stability of international trade routes. This paper provides an in-depth analysis of the strategic position of the Red Sea region and the current threats to navigation security, including geopolitical conflicts, piracy, and non-traditional security threats. Research indicates that navigation security issues in the Red Sea severely impact international trade, leading to soaring transportation costs, disrupted trade routes, and supply chain interruptions. To ensure the stability of international trade routes, the international community needs to strengthen cooperation, establish robust safeguard mechanisms, and promote regional peace and development. Through comprehensive analysis, this study provides theoretical support and practical guidance for maintaining navigation security in the Red Sea region and the stability of international trade routes.

**Keywords:** Red Sea Region; Navigation Security; International Trade Routes; Stability

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## 1 Introduction

In the context of a vigorously developing global economy, international trade exchanges are becoming increasingly frequent. Maritime transport, with its significant advantages such as large capacity and low cost, has become the primary mode of transportation for international trade. The vast majority of global goods trade is completed by sea, and the Red Sea region, as an important link between the Indian Ocean and the Mediterranean Sea, holds extremely important strategic significance. It is not only a necessary route for energy and commodity transportation for many countries but also a key node in international trade routes. However, in recent years, navigation security in the Red Sea region has faced many severe challenges, profoundly impacting the stability of international trade routes. In-depth research on navigation security in the Red Sea region and the stability of international trade routes is of great practical significance for maintaining the smooth operation of the global economy and safeguarding the economic interests of various nations.

## 2 The Strategic Position of the Red Sea Region

### 2.1 Overview of the Geographical Location of the Red Sea

The Red Sea is located between Northeast Africa and the Arabian Peninsula, exhibiting a long and narrow shape. It connects to the Mediterranean Sea via the Suez Canal in the northwest and links to the Gulf of Aden via the Bab el-Mandeb Strait in the southeast. Its unique location makes it a crucial maritime channel connecting the Atlantic and Indian Oceans, serving as a key hub for global maritime trade. Geographically, the Red Sea functions like an economic artery running through the Asian and African continents, closely connecting the prosperous economic zones of Asia with Europe and Africa. Merchant ships and tankers frequently transit here, with its traffic density ranking among the top global sea lanes. Particularly, a significant volume of Middle Eastern oil is transported through this area to Europe, Asia, and other destinations, making it a vital link in the global energy transportation network and supporting the energy needs of various countries.

### 2.2 The Importance of the Red Sea in International Trade

#### 2.2.1 Key Channel for Global Cargo Transportation

The Red Sea-Suez Canal route is a core shipping lane for trade between Asia and Europe, holding a critical position in

global maritime transport. Container trade, seaborne vehicle trade, and petrochemical trade all rely heavily on this route for transporting large volumes of goods. Taking container trade as an example, goods such as electronics, textiles, and furniture from manufacturing-intensive regions like China and Southeast Asia are often shipped to Europe via the Red Sea, directly supplying the diverse needs of European consumers. If this route is obstructed, global container trade would be severely impacted. Companies relying on this mode of transport would face cargo backlogs and supply chain disruptions, disturbing the normal flow of global trade.

#### 2.2.2 Important Channel for Energy Transportation

The Bab el-Mandeb Strait is a crucial exit point for Middle Eastern oil exports. A significant portion of Middle Eastern oil enters the Red Sea through this strait and is then shipped globally via routes like the Suez Canal. The Middle East, as the world's largest oil-producing region, is rich in resources, and the Red Sea is a core channel for its oil exports to Europe and Asia. Numerous supertankers depart from the Persian Gulf and sail through the Red Sea to their destinations. Oil is a vital energy source for the global economy, and the stability of its transportation directly affects global economic operations. If navigation security in the Red Sea is compromised and oil transportation is hindered, it could trigger significant fluctuations in oil prices, increase production costs across various industries, and hinder global economic growth. Historically, tensions in the Red Sea have repeatedly led to oil price increases, underscoring the importance of this channel for energy transportation.

### 3 Analysis of the Current Situation of Navigation Security and Threat Factors in the Red Sea Region

#### 3.1 Impact of Geopolitical Conflicts on Navigation Security

##### 3.1.1 Red Sea Crisis Triggered by Regional Conflicts

Following the outbreak of specific regional conflicts, relevant armed forces, aiming to convey their stance, have attacked merchant ships associated with specific entities within Red Sea waters. After the initial merchant ship was seized, attacks continued to escalate, severely threatening navigation security in the Red Sea. Faced with rising security risks, numerous international shipping companies, seeking to avoid losses, successively suspended operations on Red Sea routes. After leading global shipping companies initiated suspensions, it triggered a collective halt by most container shipping operators on Asia-Europe routes. As a result, the number of container ships passing through the key southern straits of the Red Sea significantly decreased. Large-scale shipping disruptions disturbed the international trade order on major Asia-Europe routes, breaking the original stable pattern of trade transportation, causing a substantial impact on global trade, and forcing many companies to adjust their established trade plans.

##### 3.1.2 Gameplay and Power Struggles of Regional Powers

Multiple regional powers are situated around the Red Sea. Based on their own interests and geopolitical goals, these countries engage in complex gameplay and power struggles in this area. On one hand, some countries attempt to control the dominance of the Red Sea shipping lanes to strengthen their voice in the international energy market and trade landscape. To this end, they promote the construction of military bases and port facilities along the Red Sea coast, expand regional influence, and seek dominance in regional affairs. On the other hand, geopolitical competition between nations makes the situation in the Red Sea more complex, with various contradictions intertwining and overlapping. This great power rivalry not only increases the probability of regional conflicts but also introduces significant uncertainties to Red Sea navigation security. Merchant ships navigating under these complex circumstances must continuously contend with potential threats from multiple parties. Navigation security cannot be fully guaranteed, compelling them to remain vigilant about changes in the surrounding situation at all times.

#### 3.2 Piracy and Non-Traditional Security Threats

##### 3.2.1 History and Current Situation of Piracy Activities

Piracy in the Red Sea region has a long history and was particularly rampant during specific periods, frequently attacking and plundering passing merchant ships, becoming a focal point for global maritime security. In recent years,

through joint escort missions and regional cooperative governance, piracy activities have been somewhat contained but not completely eradicated, still carrying the risk of recurrence. In response to international crackdowns, some pirate groups have adjusted their modus operandi, launching attacks using more covert and flexible means, utilizing the high mobility of small speedboats to approach merchant ships and board them for robbery. Piracy compels merchant ships to take additional preventive measures, such as hiring armed security and installing protective equipment, which not only increases operating costs but also directly threatens the safety of crew members. An attack could result in crew casualties and irreparable losses for companies.

### 3.2.2 Non-Traditional Security Threats such as Smuggling and Terrorism

Besides piracy, the Red Sea region also faces non-traditional security threats such as smuggling and terrorism. The intertwining of these various threats exacerbates regional security risks. Smuggling activities are prominent in this region, involving weapons, drugs, human trafficking, and other areas, forming an underground illegal trade network. Smugglers often use illegal means such as night voyages and ship disguises to transport goods and evade supervision, which not only undermines the regional economic order and impacts normal trade but also creates hidden dangers for maritime navigation—some smuggled goods may cause dangerous incidents such as explosions due to improper securing or material leakage, seriously threatening surrounding merchant ships and even triggering chain reactions. Additionally, terrorist organizations are active in the Red Sea, targeting maritime objectives, and may plan terrorist attacks against merchant ships and port facilities to achieve political goals or create social panic, severely affecting Red Sea navigation security and social stability. This forces merchant ships to maintain high vigilance continuously during voyages, increasing psychological pressure and security costs.

## 4 Impact of Red Sea Navigation Security Issues on the Stability of International Trade Routes

### 4.1 Soaring Transportation Costs

Navigation security risks in the Red Sea drive up operating costs for shipping companies: companies need to invest additional resources to ensure security, both by equipping merchant ships with armed security and bearing the related costs (which are higher during tense situations), and by paying higher war risk insurance premiums as the Red Sea is designated a high-risk area. Simultaneously, merchant ships taking longer detours to avoid risks further increase fuel consumption and ship maintenance costs, exacerbating profit pressure on companies. The increased shipping costs are ultimately passed on through higher freight rates, significantly raising the cost of goods transportation. Detours also extend transportation times and reduce ship turnover efficiency, with the increased unit cost of goods borne by the cargo owners. This not only increases the burden on import and export enterprises, compressing profits, but also transmits along the industrial chain to the end consumer, causing price increases for exported goods from manufacturing-intensive regions in target markets, weakening consumer purchasing power, affecting demand, and being detrimental to global trade balance.

### 4.2 Disruption of Trade Routes

Navigation security risks in the Red Sea have led shipping companies to suspend Red Sea routes or choose to detour around the Cape of Good Hope in Africa. This large-scale route change disrupts the original stable trade network, forcing companies to redesign logistics plans and adjust supply chain arrangements. Route disruptions extend transportation times; for instance, detouring around the Cape of Good Hope can add approximately 10-15 days to the journey from Asia to Europe. Extended shipping times delay the arrival of raw materials for manufacturing companies, affecting production schedules, and cause delays in product delivery, potentially leading to contract breaches and loss of market share. Furthermore, frequent route adjustments increase the complexity and uncertainty of trade, forcing companies to invest more resources in logistics management and risk response, raising operational difficulties and costs, and adversely affecting the smooth flow of international trade.

### 4.3 Risk of Supply Chain Disruption

Navigation security issues in the Red Sea severely impact the global manufacturing supply chain, undermining its stability and continuity. Manufacturing companies rely on cross-regional global supply chains to obtain raw materials and

transport products. Obstructions in the Red Sea channel plunge companies into difficulties regarding raw material supply and product transportation, risking breaks in multiple links of the supply chain. This not only causes significant economic losses for individual companies but may also affect entire industries, leading to reduced production capacity and insufficient market supply. Furthermore, disruptions in the manufacturing supply chain can trigger a "domino effect" in service industries: decreased efficiency and increased costs in the logistics industry, with some small businesses facing closure; cargo backlogs and increased costs in the warehousing industry; tightened risk assessment and raised financing thresholds in trade-related financial services. This chain reaction hinders the synergistic development of various industries and ultimately affects the stable operation of the global economy.

## **5 Strategies for Maintaining Navigation Security in the Red Sea Region and the Stability of International Trade Routes**

### **5.1 International Cooperation and Coordination**

#### **5.1.1 Establishing an International Joint Escort Mechanism**

To fundamentally ensure navigation security in the Red Sea, the international community needs to strengthen collaboration and establish a regularized joint escort mechanism, integrating global maritime security resources to form a concerted effort. Countries can form joint escort fleets to provide escort throughout the journey for merchant ships passing through the Red Sea, countering threats such as piracy and terrorism, enhancing escort coverage and effectiveness, while simultaneously increasing deterrence against potential threats and reducing security incidents. During mission execution, countries need to strengthen information sharing, establish efficient communication and liaison mechanisms to ensure timely communication and coordinated handling of emergencies, guaranteeing the smooth progress of escort operations.

#### **5.1.2 Strengthening Intelligence Sharing and Cooperation**

Intelligence sharing is crucial for maintaining Red Sea security. Countries need to break down information barriers and establish a unified intelligence sharing platform to achieve real-time sharing of threat intelligence related to piracy, terrorist organizations, smuggling gangs, etc., helping countries obtain security dynamics (such as activity tracks and modus operandi of threatening forces) promptly and take preventive measures in advance. Additionally, countries need to deepen cooperation in areas such as combating smuggling and terrorism financing. Through intelligence sharing, they can grasp key information about illegal activities, conduct joint law enforcement, destroy the operational systems of illegal organizations, and maintain Red Sea security order and a normal trade environment.

### **5.2 Promotion of Regional Peace and Development**

#### **5.2.1 Promoting Peaceful Resolution of Regional Conflicts**

Regional conflicts are a major cause of tension in the Red Sea. Their continued fermentation exacerbates regional turmoil and directly affects navigation security. The international community needs to proactively play a mediating role, promoting peaceful negotiations between conflicting parties to resolve disputes and avoid escalation of conflicts. The United Nations can lead in organizing international mediation conferences, providing a neutral dialogue platform for conflicting parties; major powers can use diplomatic resources and influence to encourage both sides to address reasonable demands and make concessions, alleviating tensions in the Red Sea from the root cause, and creating a favorable environment for navigation security and the stability of trade routes.

#### **5.2.2 Promoting Political Resolution of Relevant Regional Issues**

Long-standing internal conflicts in certain regions are also significant hidden dangers to Red Sea security. The international community should prioritize promoting the political resolution of such issues, coordinating various forces, and encouraging conflicting parties to reach peace agreements through dialogue and consultation, achieving regional stability. Neighboring countries can utilize geographical and friendly relations to provide support, such as assisting in establishing negotiation platforms and implementing ceasefire agreements, helping to eliminate internal regional contradictions, reducing sources of instability in the Red Sea from their origin, and ensuring long-term stability for Red Sea navigation security and international trade routes.

## 5.3 Technological Innovation and Application

### 5.3.1 Enhancement of Ship Security Technology

Shipping companies need to increase investment in the research, development, and application of ship security technology to reduce risks at the hardware level. Advanced monitoring equipment can be installed on merchant ships to achieve real-time monitoring of the surrounding environment, promptly identifying potential threats and providing early warnings; simultaneously, research and application of ship self-defense systems, equipped with non-lethal weapons, can prevent threats from approaching during attacks, protecting the ship and crew safety. Furthermore, optimizing ship structural design and using high-strength materials can enhance resistance to strikes and sinking, minimizing losses caused by attacks or accidents.

### 5.3.2 Utilizing Information Technology to Improve Navigation Security Management

Information technology can enhance the efficiency of Red Sea navigation security management through digital and intelligent means. Establishing a unified maritime traffic management information system that integrates data such as ship positions, weather, and warnings can achieve real-time monitoring and dynamic management of ships in the maritime area, allowing timely detection and handling of abnormal ship behavior. Utilizing big data analysis technology can uncover patterns of security risks, predict risk areas and probabilities, and provide safety guidance for merchant ships; simultaneously, using satellite communication technology can ensure real-time communication between ships and shore, as well as with other ships, enhancing emergency response capabilities during incidents and reducing accident losses.

## 6 Conclusion

Navigation security in the Red Sea region is closely related to the stability of international trade routes. Its unique geographical location makes it a key channel for global trade and energy transportation, playing a crucial supporting role in international trade. However, the region currently faces multiple security threats, including geopolitical conflicts, piracy, smuggling, and terrorism, which impact the stability of trade routes, leading to increased transportation costs, route disruptions, and supply chain interruptions, affecting the global economy.

Maintaining the stability of both requires coordination among the international community, regional countries, and enterprises: the international community must strengthen cooperation, establishing joint escort and intelligence sharing mechanisms; regional countries should promote peace and resolve conflicts; enterprises need to increase technological innovation to enhance ship security and management levels. In the future, with deepened cooperation and technological progress, the stability of both is expected to improve, aiding the development of global trade.

## References

- [1] Ma Xiaodong. The Necessity and Path of China's Participation in Red Sea Regional Security Governance from the Perspective of the Global Security Initiative [J]. *Indian Ocean Economic and Political Review*, 2023(4):131-150.
- [2] Qin Liangpeng, Wang Ming. Thoughts on the Impact of the Red Sea and Gulf of Aden Shipping Security Situation on the Safety of China's International Shipping Channels and Countermeasures [J]. *China Maritime Safety*, 2024(6):68-70.
- [3] Zhang Min. Research on the Coordinated Development of International Trade and the Environment [J]. *Business Research*, 2008. DOI:CNKI:SUN:BUSI.O.2008-02-056.
- [4] Niu Haojie, Liu Qin. Research on the Coordinated Development of China's International Trade and International Logistics under the "Belt and Road" Initiative [J]. *Operations Research and Fuzziness*, 2025, 15(3):12. DOI:10.12677/orf.2025.153181.
- [5] Liu Yanan. The "Belt and Road" from the Perspective of International Trade Theory [J]. *Management & Technology of SME*, 2021(23):2.