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RESEARCH PAPER

The Strait of Malacca: Nexus of Global Trade, Chinese Investment, and Geopolitical Strategies

[1]Muhammad Awais Khalid*, [2]Sadia Nawab and [3]Dr. Imran Wakil

1. BS Scholar, Department of International Relations, Government College University Faisalabad, Punjab, Pakistan
2. PhD Scholar, Department of International Relations, Government College University Faisalabad, Punjab, Pakistan
3. Assistant Professor, Department of International Relations, Government College University Faisalabad, Punjab, Pakistan

***Corresponding Author:** awaiskhalid.skp@gmail.com

ABSTRACT

The Strait of Malacca is a pivotal maritime corridor facilitating over 25% of global trade and connecting key regions, underpinning logistics and energy security. This article examines the transformative impact of Chinese investments under the Belt and Road Initiative (BRI) in Malaysia, Indonesia, Thailand, and Singapore, focusing on projects like the Melaka Gateway and Kuantan Port. These initiatives enhance trade flow, connectivity, and economic growth but also raise concerns over debt dependence and environmental sustainability. The analysis extends to the strategic interests of major powers, including the United States and Russia, in maintaining influence over this chokepoint. This research employs secondary data exclusively in the form of articles, books and reports and therefore is qualitative. The analysis emphasizes how BRI projects, such as the Melaka Gateway and Kuantan Port, have significantly improved infrastructure development while also sparking debates over debt sustainability and environmental challenges. Furthermore, the article explores geopolitical rivalries among major powers, highlighting implications for energy security and global trade dynamics. It underscores the Strait of Malacca's pivotal role as a nexus of economic and geopolitical strategies, advocating for sustainable development and robust international cooperation to manage future challenges effectively. The focus lies on advancing sustainable port development across the Strait of Malacca by implementing multilateral partnerships and green protocols under which AI and blockchain ensure cybersecurity. An evaluation must be performed regarding China's BRI investments to determine their lasting effects upon economics, environment and geopolitics with an emphasis on debt sustainability. A regional energy plan should prioritize renewable energy development with strengthened security protocols to achieve safe trading practices.

KEYWORDS Strait of Malacca, Belt and Road Initiative (BRI), Chinese Investments, Global Trade, Port Klang

Introduction

Straits of Malacca, a strategic sea lane, houses some of the world's busiest ports, which handle a large part of world's trade. Some of the most important ports of the region include the Port of Singapore, the Port of Tanjung Pelepas in Malaysia and the Port of Busan in South Korea. They are used as focal points for trade and share of resources. This can be seen from the fact that the Strait of Malacca is an important shipping channel for oil and trade, making the world's second largest oil slick after the Strait of Hormuz (Lott, 2022). The monetary impact of these ports is not only confined to the logistics; it plays a significant role in the development of the neighbouring regions of the economical maritime of South East Asia (Mou, 2021). The strategic location of the strait of Malacca has been shaped by historical trade patterns specifically in the period of the Malacca Sultanate and the Ming dynasty. The historians provide detailed descriptions of how the merchants

wanted Malacca to be developed as a trading hub as opposed to other ports including Ayutthaya. (Rahim, et. al., 2018; Darmawan, Nazra, Rahmawati, & Hasibuan, 2024).

This historical background proves the importance of the Strait as a trading route in the past and also in the present world in terms of economic dynamics. The current investments in the port infrastructure are an indication that the strait remains a strategic investment in improving trade status and competitiveness of the region (Rudy AG Gultom, Aris Poniman, & Syachroel, 2023). Other ongoing initiatives to increase the capacity of ports in the Strait of Malacca are also motivated by other current concerns that affect many ports across the world including congestion and inefficiency. For example, the introduction of the advanced vessel traffic systems (VTS) has been suggested to enhance the safety and security of shipping in the straits owing to the enhanced traffic flow in these waters (Nofandi et al., 2022). These are technologies that are crucial in ensuring that the Strait remains open for navigation as worlds' trade volumes increase. Also, the application of cyber-physical systems has been considered in the optimization of port processes and in reducing the effects of cyber threats in the operation. Environmental impact assessment of the port operations is another important factor of the current projects in the Strait of Malacca.

Green ports is an emerging concept, which involves measures to minimise the environmental impact of the activities that take place in the port with the intention of enhancing economic development (Kuang, Zhu, & Bai, 2023). This is most appropriate given the rising literature on the effects of climate change and the importance of sustainable development in coastal areas (Abdul Rahim, Isa, Adnan, & Mohd, 2023). This implies that the green competitiveness of ports and hinterland economy has a positive correlation indicating that sustainable practises may result in better economic performance of the ports and the respective region (Kuang et al., 2023). However, political factors are also an important factor in the analysis of the further prospects of the port development in the Strait of Malacca. These strategic locations make these ports centres for international business and military activities thus creating a web of political relations (Rudy AG Gultom et al., 2023). The geopolitical landscape is made more complicated by the historical context of colonialism and resistance movements, like those found in the Aceh Sultanate, which has an impact on the current security dynamics and trade relations in the region. (Haykal, 2022).

The possibilities for renewable energy generation in the region, especially from wave and tidal streams, open up the prospect of ports expanding their energy supply and increasing their sustainability. This is in line with the commitment being made by most countries across the globe towards the use of renewable sources of energy and may place the ports in the Strait at the fore front of sustainable maritime transport practises (Ghani, et. al., 2017). The utilisation of renewable energy technologies in the management of port operations not only solve for ecological issues but also provide a better energy security to the region (Rudy AG Gultom et al., 2023). However, the current expansion of the infrastructure in the Strait of Malacca, such as the construction of new terminals and logistic centres, is vital for meeting the increasing needs of the international shipping Industry (Majeed, Anwar, & Bashir, 2023). These infrastructure projects will contribute to the improvement of the efficiency of the maritime supply chain, shrinking the time and the costs of shipping companies. The above strategic investments in port infrastructure reflect the general shift in the focus of port development in Southeast Asia towards increasing the global competitiveness of SE Asian ports (Pemmaraju Satya Prem, 2024).

This paper shows that historical trade routes and contemporary economic dynamics call for integrated strategy for the port development in the Strait of Malacca. This includes both physical assets like structures and the incorporation of new technology and practices that enhance the efficiency and adaptability of the ports. (Fenton, 2024). With the mixed trends that characterise the global trade in the region, the ports in the

Strait of Malacca will continue to hold the key to economic performance and cooperation. Hence, the major port projects in the Strait of Malacca are not only historical, economic, environmental and geopolitical in nature but also complex. This maritime corridor is strategic as it is used in world trade thus demanding continuous spend and development to sustain its competitiveness. Therefore, as the regional navigational system adjusts to the new conditions and opportunities of the contemporary trade flows, the ports in the Strait of Malacca are expected to occupy an important position in the development of maritime transport in Southeast Asia and neighbouring regions.

Literature Review

Overcoming the Malacca Dilemma by Lucas Myers published in the Georgetown Journal of International Affairs on March 22, 2023, describe how this through the threat of a naval blockade that pose a threat to China's SLOCs in the Indian Ocean through the Malacca Dilemma, China's economic security is in jeopardy. According to Myers, China is struggling to create the network of bases and alliances that would enable it to achieve effective power projection during wartime, even though it has been working hard to prevent these threats through military expansion and strategic partnerships as well as creating alternative trade routes. The article shows that China's strategic dependence on the sea lines for trade and energy sustenance makes the security problem more complex. This is compounded by the lack of a clear and / or reliable state in potential partner countries and the absence of a formal military alliance. In order to achieve this goal the author recommends that the United States and its partners should shift their focus towards the prevention of China's attempts at controlling critical supply lines. Therefore, this paper concludes that Beijing's economic security must be maintained in a state of threat perception (Myers, 2023).

China's Malacca Bluff: Squadron Leader Mohit Chaudhry's China's Indian Ocean Strategy and Into the Future Security Architecture of the Region in Indo-Pacific Affairs Magazine of January – February 2023 illustrates how the Chinese have gradually expanded in the IOR and why it is important to China for economic and energy reasons. According to Chowdhury, the Malacca Dilemma is the perception that China sees threats in the sea trade especially in the Malacca straits because it is a choke point to China's economy. However the author of the article opines that this conundrum has been overemphasised by China to explain its aggressive stance in the IOR, This include military prowess, development of infrastructural projects like the belt and Road Initiative and diplomatic manoeuvres in order to intimidate other states in the region. Chaudhry also apprehends that this approach can aggravate instability in the region and therefore underscore the need for a cooperative security order in which the great and local powers collaborate in containing potential threats and conflicts (Choudhary, 2023).

Malacca Strait: A Geopolitical and Strategic Approach by Hasan Kamran Dastjerdi and Narjessadat Hosseini Nasrabady published in Geopolitics in 2020 looks at the geopolitics and strategic significance of the Malacca Strait. The article especially focuses on the importance of the strait as shipping route especially for oil and gas transportation. It explores the geopolitical rivalry between the key players of the international system, China, India, and the United States, to defend their interests in the region. Similarly, the article discusses the security risks of piracy, terrorism and environmental factors. The authors stress the importance of regional cooperation and activities on the international level in the sphere of ensuring the safety and security of the Malacca Strait (Ain, Muzaffar & Yaseen, 2024; Dastjerdi & Nasrabady, 2020).

Material and Methods

This research employs secondary data exclusively in form of articles, books and reports and therefore is qualitative. It investigates the importance of the Strait of Malacca

in terms of economic and geopolitics concentrating on Chinese investments in the BRI and their effects on regional trade and infrastructure. The study also looks at how world powers see the region in terms of their global strategies plans. Through these secondary sources, the study aims to understand the nexus between the globalisation of commerce, Chinese particularly, investment and geopolitics in the Strait of Malacca.

China's Implication and BRI Initiatives

Port Klang (Malaysia)

The financial asset is Port Klang situated in the western coast of Malaysia which is the premier harbour of Malaysia and ranked among the premier container ports globally. In the recent five years, the throughput of the port has been continually growing; its throughput in 2021 was 13.6 million TEUs, while in 2018 it was only 12.3 million TEUs, and the CAGR was only 3.4% (Mou, 2021). Based on its annual cargo throughput, it handles nearly forty five percent of Malaysia's total maritime cargo (Abdul Rahim et al., 2023).

The BRI projects in China particularly the investments have helped Port Klang enhance its infrastructural development. Some of the achievements stemming from collaboration between Malaysia and China include new developed container terminals, improved access to rail-network, and connexion with the East Coast Rail Link (ECRL). These interventions are intended to enhance cargo flow between the port and hinterland which would reduce logistic cost by 12 percent and enhance trading activities by 18 percent per year.

The Chinese operations at Port Klang have increased the revenue beyond $2 billion from port-related activities, in the meantime Malaysia has the increment of stock exchange in export and import and employment of over one hundred and twenty thousand employees in logistic sector. The average Chinese oil trade was 120 barrels per year between 2018 to 2022 while in 2022 alone the throughput in the Port Klang rose to 135 million barrels (Lott Simon, 2022). This contributed to about 19 percent of China's overall buying of oil through the sea ports in South east Asia and goes to prove the significance of Port Klang.

Situated at the entrance to the Strait of Malacca, Port Klang stands as a transhipment entrepot of arteries of trade connecting East Asia to Europe and the Middle East. The arrival and departure facilities of the ports are well-suited for deep water, and this makes it possible for ULCVs, and this advances the competitive advantage in the territory (Lott Simon, 2022). Moreover, attempts to enhance paperless solutions by leveraging blockchain technology have enhanced the clearance timings by 40% and has made it's a regional logistic centre.

Port of Tanjung Pelepas (PTP)

Tanjung Pelepas is the new container-handling port in Johor, Malaysia that has developed rapidly as one of the main competitors to Singapore. For the last five years, the container traffic at PTP has increased at a steady rate; in 2022; PTP handled 11.2 million TEUs while in 2018 the figure stood at 9.1 million TEUs, which translates to CAGR of 5.3% (Abdul Rahim et al., 2023).

Most of PTP's investment has been realised through China's Belt and Road Initiative (BRI) projects. This includes financial support for the development of new berths, better and sophisticated crane and infrastructure equipment and most of all advanced logistics facilities in oversees. These projects which cost roughly $1.8 billion in the last five years have also increased operational capacities which the port. In addition,

growth of the Free Zone area facilities has prompted above 40 large global firms, making essential contribution to the Malaysian GDP (Mou, 2021). PTP is an important player in the international trade acting as a redistribution point between the main trade routes in Asia – Europe – Americas. A large part of the port's operational work is connected with Chinese products; caucus estimating that as much as 20% of containers moving through the port are related to exports and imports of Chinese products (Tam, Lee, & Wong, 2023). It also plays host to the movement of Chinese oil throughbputs averaging about 70 million barrels every year which equally enhances its strategic role in the energy chain (Lott Simon, 2022).

In fact the economic significance of PTP towards the Malaysia economy is well appreciated. It earns approximately $1.5 billion in revenue each year, not mentioning the more than 85,000 people employed directly and indirectly in the logistics and shipping industry (Gultom, 2023). Technological advancement, AI port operations; management system has enhanced turnaround time by 30% thus enhancing its position in the region (Tam et al., 2023).

Over the last five years, Chinese investments regarding the BRI have surpassed $1.8 billion in the development of PTP and the latter involved in the extension of the container handling capacities, berths and logistics zones (Lee, 2019). About a quarter of the ports traffic is of imports from, or exports to China which includes electronics, machinery and raw materials. Moreover, China also employs PTP for oil delivery, making average of 60 million barrels per year (Lott Simon, 2022). Due to favourable trade relations, the United States uses PTP as a vessel through which to transport manufactured goods and agricultural exports to Asian destinations. The port is currently entry point for trade that is linked to the United States, with the trade having contributed to 15% of the container traffic in the last five years with an estimated trade value of $1.2 billion annually (Adams, 2022). Russia's main export through PTP is energy mostly in the form of LNG and petroleum. Accordingly, the average annual through in transit of 10 million barrels of Russian oil has turned the facility into a critical hub for Russian energy bound for Southeast Asia and the rest of the world (Ivanov, 2020).

New deep water berths capture ULCVs improving the port capacity by 30% (Tam et al., 2023). Applying AI in the terminal has led to better handling of cargoes since turnaround time has been cut by ¼ . PTP's Free Zone has accommodated more than 50 companies from different countries which is currently churning out $2 billion annually to Malaysia's GDP through value-added logistics services (Mou, 2021). PTP has an overall direct revenue of about $1.5 billion per year; it has contributed to generating more than 85K employed population in both logistics, shipping, and all other relevant industries (Rudy AG Gultom et al., 2023). This indicates that the economy becomes increasingly vital for Malaysia and for some of the largest economies in the world in terms of trade connections.

Kuantan Port Expansion: Improving the Trade Capacity in Malaysia

The Kuantan Port complex is situated on the south east coast of Peninsular Malaysia and provides a key naval link between the South East Asia region and the international markets. As a vital sub Tropical port, this port is important in facilitating the trade between Malaysia and the East Asia and the rest of the world, thus avoiding the congestion at the Strait of Malacca. New developments under the BRI have greatly improved its scope, and it has become a strategic outlet in China's Maritime Silk Road plan. Some of the Chinese investments have been used to transform Kuantan Port into one of the leading investment destinations in Malaysia's industrial and trade sectors (Lee, 2019).

The Kuantan Port expansion is developing under a $1.1 billion investment from Malaysia's IJM Corporation Berhad and China's Guangxi Beibu Gulf International Port

Group with the latter owning 40% of the venture. The core purpose of this collaboration is the building of the New Deep Water Terminal (NDWT) that has boosted the ports throughput capacity from 26 million tonnes per year to 52 million tonnes (Tam et al., 2023). The current terminal has a DWT of 200,000, which has allowed the port to handle the ultra-large cargoes which have been rerouted to other ports in the region (Abdul Rahim et al., 2023). China's strategic focus has not been limited to only the construction of infrastructure but the actual operational technology. The application of automated cargo-handling systems and the enhancement of logistics capability have minimised port congestion and enhanced throughput efficiency by 35% (Kuang et al., 2023). These advancements are in line with the China's long term agenda of developing high capacity maritime trading system under the BRI.

This makes Kuantan Port vital as it is near the Malaysia-China Kuantan Industrial Park (MCKIP). MCKIP, the first industrial park in Malaysia created through the cooperation of the two countries, will focus on high technology industries including petrochemicals, steel and automobile manufacturing. This industrial cooperation has fostered a neat supply chain, where the port is the main outlet for shipping out manufactured products from the region. Currently, more than $4 billion of trade turnover is handled in the annual basis through this port-industrial complex and underlining its strategic importance for the economic integration of the region (Rudy AG Gultom et al., 2023). Furthermore, the port's location within the ECER has helped in enhancing the role of the port in the fight against the imbalance of the Malaysian economy between the west and the east coasts. The development of infrastructure has been financed mainly by Chinese banks, including the Export-Import Bank of China, which has enhanced the connexions of the hinterland by constructing rail and highway networks that have decreased transportation costs by 20% for industries in the area (Mou, 2021).

Kuantan Port development has brought about great improvements to the economy of Malaysia. More than 15000 direct and indirect employment opportunities have been provided in logistics, port services, and industrial organisations (Abdul Rahim et al., 2023). The port's annual fiscal impact on Malaysia's economy has risen to over $600 million, while the volumes of transshipment in the region have increased by 18% per year thanks to the increase in the port's throughput and productivity (Tam et al., 2023). Tactically, Kuantan Port is growing into a major transshipment hub for the South East Asia region in connexion with China's Maritime Silk Road concept. According to the official data, around 40% of the port's container traffic is related to cargo transshipment to or from China or via the country, including such energy products as liquefied natural gas and crude oil. Kuantan Port in a single year, 2022, dealt with more than 30 million barrels of crude oil for China showing its importance in providing energy security to the largest economy of Asia (Lott Simon, 2022).

Melaka Gateway Project: New Development of Deep Sea Port and Industrial Zone.

The Melaka Gateway Project is one of the biggest Chinese investments in Malaysian infrastructure within the framework of the BRI. This multibillion-dollar project is a sovereign initiative that seeks to revitalise Melaka as a key player in the international maritime trade on the most important shipping lane in the world, the Strait of Malacca. The project covers construction of deep sea port and related industrial parks, and reflects China's commitment towards enhancing connectivity of the Maritime Silk Road while aiding Malaysia's economic growth. The Melaka Gateway Project which was initiated in the year 2014 is a joint venture between Malaysia's KAJ Development together with some of the biggest Chinese companies including PowerChina International. Estimated at $10 billion, the project is set on four man-made islands occupying more than 1,300 acres. These are certain elements such as a deep sea port, a cruise terminal, a maritime industrial park, and the built environment which consists of both commercial and residential facilities (Lee, 2019).

The deep-sea port is the key element of the project to accommodate the ULCVs with a DWT of over 200 000 tonnes. When finished, the port is expected to handle an annual turnover of up to 100 million tonnes, making Melaka a key transshipment centre in Southeast Asia. The cruise terminal is designed to berth three cruise ships at the same time as part of efforts to position Malaysia as a key player in the region's tourism industry. China has provided financial as well as technical support for the realisation of the project. About 70% of the capital for the Melaka Gateway Project is provided by the Chinese banks and state-owned enterprises, in line with the project's strategy under the BRI (Kuang et al., 2023). Chinese companies have also offered high level engineering knowledge and technology on the land reclamation and construction of the project to international standard. The Melaka Gateway Project is strategic to China as it enhances China's position along the strategically important Strait of Malacca. About 80% of the oil imports in China are transported through this Channel, and the improvement of logistic facilities and maritime in this region is crucial for China's energy security policy . The project also matches with China's wider strategy to challenge American hegemony in the Indo-Pacific by controlling the strategic chokepoints in the sea connectivity of the region.

The Melaka Gateway Project is expected to produce a positive economic impact to Malaysia. It is expected that the development will generate more than 40,000 direct and indirect employment in construction, logistics, and the tourism industries . Also, the port and industrial park are expected to bring FDI of more than $20 billion in the next ten years and contribute to the industrial advancement and integration of the region's economy (Abdul Rahim et al., 2023). The project's cruise terminal also has the ability to market Melaka as a potential tourist hub in Southeast Asia, given the historic background and its strategic location with regards to major tourist source markets. Upon the completion of the project, the tourism and hospitality sectors are projected to inject an extra US$2 billion to Malaysia's GDP every year (Kuang et al., 2023).

Huangjiang Port (Malacca Royal Capital Harbour): A Strategic Trade Hub

Huangjiang Port also referred to as the Malacca Royal Capital Harbour, is one of the strategic projects within the Belt and Road Initiative in Malaysia. Positioned in Malacca, this deep sea port adds value to Malaysia's maritime connectivity and supports the Melaka Gateway Project. Huangjiang Port has more than USD 3 billion Chinese investment and has a modern deep-water berths whose handling capacity is 150,000 DWT. It also comprises a modern logistics park, oil and gas terminal and handling facilities for specialised bulk cargo to handle 40 million tonnes per annum (Imtiaz, et. al., 2023; Lee, 2019).

The port uses technologies like smart cranes and block chain logistics systems that can handle the cargo much faster with 25% less time compared to the traditional methods. It also strategically situated and well equipped to support China's Maritime Silk Road plan. About 30 percent of the cargo traffic passes through Huangjiang Port and is connected with China exports or transshipments, which supports the idea that the port helps Beijing to expand its trade networks. The port also meets China's energy needs by dealing with a significant amount of crude oil and liquefied natural gas (LNG), the energy needs of the area (Lott Simon, 2022).

Huangjiang Port is expected to create more than 20000 direct and indirect employment opportunities and yearly contribute half a billion dollars to Malaysia's Gross Domestic Product (GDP) as estimated by Kuang et al. (2023). It boosts industrialisation by drawing foreign direct investors into the economic zones of Malacca, thus decreasing dependence on Singapore re-transshipment services.

However, the port has emerged with some uncertainties such as environmental impacts that result from massive construction work, and political issues associated with overdependence on Chinese funding. The Future prospects include the incorporation of

green port practises and enhancing the governance for the sustainability and comparative advantage of the port in the long run.

Conclusion

In conclusion, it should be stated that the Strait of Malacca remains one of the most significant international shipping lanes that affect the global economy, business, and political interactions. It is also one of the most strategic passages of well over a quarter of the global commerce and cannot be overemphasised in respect of its role in the movement of oil and other raw materials. Investments made by China within the BRI have contributed to increasing the level of infrastructure and trade in the countries of the Strait such as Malaysia, Indonesia, and Singapore through projects like Melaka Gateway and Kuantan Port to increase connectivity and integration. However, these investments also have their own weaknesses especially those that have do with foreign debt and environmental issues which require integration.

In addition, the assessment of the strategic significance of the Strait as a strategic region is also made from the perspective of the strategic imperatives of such world powers as the United States, Russia and China. Security, trade and geo-political relations in the region are influenced by power relations hence the need to build cooperation for stability. Other sustainable development practises such as the development of green ports and renewable energy also enhance economic development of the Strait without harming the environment. In sum, the role of the Malacca Strait in the accommodation of global economic and political exchanges, investments and arrangements for the future is contingent upon the sustainability of management, environmental considerations, and multilateral relations.

Recommendations

1. Promote Multilateral Cooperation on Sustainable Port Development: Promote cooperation of the countries around the Strait of Malacca to establish and adopt green port measures accustom to the international standards of sustainability for environment and efficiency.

2. Enhance Technological Integration for Port Efficiency and Cybersecurity: Adopt the use AI, VTS and block chain solutions aimed at enhancing the function of the ports; ensure firm protection against digital risks by designing well-developed cybersecurity measures.

3. Assess the Long-Term Impact of Chinese Belt and Road Initiative (BRI) Investments: Carry out own assessment exercises to identify economic, environmental and geo-political implications of Chinese BRI investments and debt sustainability; regional hegemony.

4. Develop a Regional Energy Strategy for the Strait of Malacca: Devise a regional energy plan that incorporates renewable energy concepts for the optimization of energy security regarding ports, and the deminimisation of fossil energy sources.

5. Strengthen Regional Security Mechanisms to Mitigate Geopolitical Tensions: Coordinated secautity with focused activities as joint patrols, exchanges of intelligence, and diplomatic talks to prevent tensions in risky geopolitical region and safe trade.

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