Formulating a Way Forward Strategy for Malaysia Cross Border Inland Port Using SWOT and TOWS Analysis

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ABSTRACT
Malaysia holds the position of being Thailand’s primary trading partner within the ASEAN region and ranks as the fourth largest trading partner overall. The bilateral trade between these two nations in 2020 amounted to nearly RM80 billion. The seaport in Malaysia has emerged as a preferred hub for exporters from Thailand. Nevertheless, the current cross-border inland port, known as the Padang Besar Inland Port (PBCT), exhibits constraints in its operational capacity. The rapid expansion of the economy in southern Thailand, along with the increasing need for cross-border freight transportation to the nearby Penang seaport in Malaysia, makes the future building of more inland ports across the border an inevitable development. Despite its significance, there is a paucity of detailed studies on inland ports along the Malaysia-Southern Thailand border. Further investigation is necessary to address the recent challenges pertaining to external threats and internal limits faced by cross-border inland ports. This study seeks to explore the present issues faced by the Malaysian cross border inland port and to analyze potential solutions for future development via the application of SWOT and TOWS analysis. The methodology employed in this study encompasses interviews conducted with important stakeholders, on-site observations, and desktop research. A SWOT analysis is conducted on the current cross-border inland port, followed by a proposition of employing a TOWS analysis for future cross-border inland ports. The highlighted findings pertain to major outcomes derived from interviews, on-site observation, and secondary data analysis. The establishment of successful inland ports requires the availability of strong supporting infrastructures and information systems, according to key findings. The development of adequate infrastructure, including well-connected road networks and direct rail links, should be a top priority for the government through NCIA. To reduce competition in the future, it is essential to forge strategic agreements with Southern Thai government and logistical companies. Significant opportunities are presented by the emergence of new markets, namely in the area of halal products and halal logistics. The government should also conduct a thorough assessment of the taxation of transit cargo. Overall, it is intended that the research would provide up-to-date perspectives on the Malaysian cross-border inland port as well as the strategic directions for the relevant authorities and inland port operators.

KEYWORDS: Inland port, Logistics, Thailand, Malaysia, TOWS, SWOT, Supply chain, Dry port

1. INTRODUCTION
Malaysia have developed four main inland ports in peninsular Malaysia since 1984. The four main inland ports in Malaysia are Ipoh Cargo Terminal (ICT), Nilai Inland Port (NIP), Segamat Inland Port (SIP) and Padang Besar Cargo Terminal (PBCT). These inland ports have assisted container terminals in managing container distribution within Malaysia and also plays role as international transshipment containers heading to and from South Asia, Cambodia, Thailand and Vietnam (Jeevan, 2017). Most of the inland ports in Malaysia are located on the west coast of the peninsular, whereas one can be found in Tebedu, Sarawak (Jeevan et al., 2021). Inland ports complement global supply chains and can become an integral part of transportation trade corridors by providing opportunities for increased service levels, value-added assembly/processing of imports and lowering total supply chain costs (Prozzi et al., 2002). Two important aspects of supply chain management revolve around the minimization of transportation costs and the
Inland ports in Malaysia have increasingly played an active role in facilitating the nation’s trade, enabling goods to be transported and distributed from seaports to their final destination. The development of inland ports is crucial in dealing with the dynamic changes in freight and logistic processes. Efficient and sophisticated value-added services are essential to enhance the inland port’s performance (Tsilingris & Laguardia, 2007). Significant benefits of inland ports for transportation trade corridors include raising service quality, value-added assembly and processing of imports, lowering overall supply chain costs, improving local and regional development, and benefiting local communities economically (Jeelen et al., 2019; Khaslavskaya & Roso, 2020; Ducruet & Guerrero, 2022; Rubbrecht, 2022; Wu et al., 2022; Wan et al., 2022). Malaysian inland ports have been positioned as the main extended gateways of major container seaports as a result of increasing throughput of container seaports. Nazery et al. (2012), revealed that most of the inland ports in Malaysia have insufficient infrastructure and facilities, thus their support for the adjacent seaports is limited. This is evidenced by a recorded low volume of containers handled by inland ports. Additionally, the services provided by Malaysian inland ports are not sufficient to fulfil customers’ needs. According to Nazery et al. (2012), the distance from seaports, accessibility to the seaport, access to road and rail systems, linkage between and within modes of transport as well as unused railway tracks because of insufficient planning are some of the problems of Malaysian inland ports operation. With significant growth of southern Thailand economy and demand for cross border cargo shipment to the nearest Malaysia’s Penang seaport, the impending establishment of more inland port at the border is inevitable. Despite its importance, relevant study on the said cross border inland port are still lacking and incomprehensive. Recent issues related to competitive establishment of a cross border inland port vis-à-vis internal and external factors require further investigation. Henceforth, this study aims to investigate current challenges of Malaysian cross border inland port at Malaysia-Thailand border, and to examine the way forward strategies using SWOT and TOWS analysis. The remaining part of this paper is organized as follows. Section 2 briefly explain research methodology employed for this study, followed by Section 3 on analysis of findings. The analysis of findings is divided into two sub sections in which are desk research, and interviews and observations. Section 4 is focusing on the SWOT analysis, followed by Section 5 on TOWS analysis. Section 6 concludes the paper with discussion on managerial implications.

2. METHODOLOGY

The study employed qualitative approaches in which interviews with relevant players and stakeholders, observations and desk research had been carried out for data collections. Respondents of the interviews includes operators of two inland ports in the northern region (one cross border inland port, and another one is city based inland port), one regional development authority, a major seaport operator, and a major logistic company. Field visits have been carried out at PBCT, ICT, and PKT, as well as the sites of PIP and BKHIP. On-site observation was conducted at the existing cross border inland port (PBCT) and the city inland port (ICT). The observations were mainly aimed at how the ports are managed, capacity utilization, technology in used, and cargo handling operations. Interviews have been conducted on-site and online with the involvement of senior management team (one representative team per organization) from PBCT, ICT, NCIA, PKT, and PPSB. Basic structure of the interviews is based on the following themes: (1) current situation of the inland port and its roles, (2) challenges, opportunities and strategy of the inland port, and (3) impact and way forward of the inland port.

3. ANALYSIS OF FINDINGS

3.1 Desk Research: Cross-border Trade Between Malaysia-Thailand

The expansion of a nation’s economy depends in large part on international trade, and for Malaysia, trade with the other countries that make up ASEAN is particularly crucial (Soosai et al., 2021). Malaysia is
Thailand’s largest trading partner in ASEAN and the fourth largest overall. Value of cross border trade between Thailand and Malaysia for the last year is RM79.1 billion. Thailand export to Malaysia increased 42.62 per cent to 346.6 billion baht (RM43.7 billion). Beside these trades, Malaysian seaport also become a gateway hub for Thailand’s exporters. More than 68-70% of South Thailand’s volumes are exported through Penang Port. Main goods from Southern Thai to Penang Port are sawn timber, wood moulding, latex, rubber products and rubber. The main reason for shipper to load cargo via Penang port is the freight cost as it is cheaper compared to Songkla, Laem Chabang or Bangkok ports. Moreover, the route of Trang province is close to Penang port than Laem Chabang or Bangkok ports. Shippers from Thailand and Malaysia potentially receive almost a 25% lower price if they choose the rail service when sending their containers to Penang Port. However, the services have not been utilized much due to the shortage of locomotives and limited service. There are three main routes for the trades; namely road, rail and barge. As shown in the following Table 1, most of the exports is carry by rail, which move more than 50% of the volume.

In order to encourage cross-border trade, the Thai government also decided to improve the operation of nine border checkpoints for the three southernmost provinces: Pattani, Yala, and Narathiwat. The Southern Border Province Administrative Center (SBPAC) has proposed a four-lane road expansion project, the development of roads that connect border checkpoints to the region’s special economic zone, and improvements to Highways 410 and 4326. The lead time for document processing at the border is expected to increase dramatically due to the numerous agencies involved in controlling cross-border movement and the incapacity of PBCT to expand further. Every movement would need a permit, which would need to be released by 27 separate issuing bodies, claim Nasir & Hussim (2019). The purpose of the licenses was to guarantee that no products entering Malaysia would harm the environment. To guarantee that the information about the cargo’s origins is accurate, a certificate of origin (CO) is also necessary. The purpose of the CO’s naming was to indicate clearly where nation the shipment originated in. The inefficiencies at the border have been attributed to a multitude of documents. The underutilization of information technology poses an additional obstacle for international traders. Generally speaking, haulage service providers at borders continue to mostly rely on manual interactions between various parties, including governmental organizations.

Meanwhile, the Thai government is now promoting the creation of the Special Economic Zone (SEZ) in the Chana district of Songkhla in order to create jobs and revenue for the locals, in an effort to solve the issues of development, poverty, and unemployment in Southern Thailand. The reconstruction of the Nathap, Talingchan, and Sakom tambons; a deep-sea port; new roads; and a power plant that uses natural gas, biomass, or other renewable energy sources are all part of the 18.68 billion baht SEZ project. In six industries—agricultural/light industry, heavy industry, electricity generation with a 3,700 megawatt total capacity, downstream port services industries, warehouses and distribution centers, one-stop services, and residential areas—the project is anticipated to generate 100,000 jobs. In an effort to encourage rubber processing and enhance the value of rubber goods, Thailand has also studied the creation of a Rubber City in the Southern Region Industrial Estate, which is situated in Ban Chalung, Hat Yai district, Songkhla province, Kedah Rubber City (KRC). Malaysia’s first dedicated rubber eco-industrial park, is expected to create 15,000 jobs by 2025 with planned investments of RM10 billion. KRC would take advantage of its advantageous location inside the Indonesia-Malaysia-Thailand Growth Triangle (IMT-GT) and along the Malaysia-Thailand border’s “Rubber Belt” to support the sector’s upstream and downstream initiatives. All of these changes highlight the necessity for more cross-border inland ports as well as the significance of far more effective cross-border trade.

### 3.2 Key Findings from The Interviews and Observations

#### 3.2.1 Cross Border Inland Port

Padang Besar Cargo Terminal (PBCT) was built in 1990 and is the existing inland port along Malaysia – Southern Thailand border. Two more inland ports designated for Malaysia – Thailand border is currently under construction. PBCT is the second inland port built after

| Table 1: Annual South Thailand’s volumes of export through Penang Port (TEU) |
|-----------------|------|------|------|------|
| Road | Rail | Barge |
| 2018 | 2019 | 2020 | 2021 | 2022 |
| 80810 | 130163 | 43554 | 254527 |
| 62841 | 140313 | 40071 | 243225 |
| 64570 | 102920 | 52434 | 219924 |
| 68135 | 96897 | 27316 | 192348 |

Source: NCIA
Ipoh Cargo Terminal (ICT) and managed by Multimodal Freight Sdn Bhd which is a subsidiary of Keretapi Tanah Melayu Berhad (KTMB). PBCT is located between the borders of Malaysia and Thailand making it a very strategic location for cross-border business. Time taken to transport the cargo to Penang Port is also shorter compared to major seaport in Thailand.

Currently, PBCT plays a role as a major inland port in Malaysia and can manage around 145,000 TEUs per year and an average of over 12,000 TEUs per month. PBCT is the main hub for the transportation of cargo of various goods from Thailand to Penang port apart from being an empty cargo transportation hub from Penang port back to PBCT. PBCT is equipped with facilities for custom clearance for the purpose of managing 95% of containers consisting of transit containers. In terms of land area, PBCT is relatively small but able to handle a larger amount of cargo compared to other ports. However, if the bureaucracy from the authorities can be reduced, it is expected that PBCT will be able to further increase the existing cargo management capacity. In 2015, PBCT was used as a benchmark for inland ports to be built between Thailand and Cambodia. Currently, the cargo transferred at PBCT consists of raw materials or semi-finished materials and not a finished product. These raw materials will be sent mostly to China to be processed into finished products. PBCT’s clients are from companies from Nakhorn Si Thammarat, Trang and 14 other provinces within a radius of 700km southern Thailand. On average, there are about 45,000 TEUs of products or raw materials produced within a radius of 700 kilometers starting from Nakhorn Si Thammarat and other areas of southern Thailand but only around 22,000 TEUs of products are shipped to Penang port and PBCT is only involved in managing around 10,000 TEUs per month and the remaining 12,000 TEUs enter Malaysia through Bukit Kayu Hitam or by barges. If PBCT wants to take the opportunity to manage 22,000 TEUs of products produced (in southern Thailand), the size of PBCT needs to be further increased.

There will be new inland ports in Perlis with an area of 500 acres under construction known as Perlis Inland Port (PIP), and is expected to be able to accommodate around 2 million TEUs per year based on projection made. PIP and PBCT are expected to collaborate due to geographical proximity, target market (Thailand exporters’ point of entry – Padang Besar), and common government’s investment interest between the two. Among the advantages of PBCT is that the mode of cargo delivery from PBCT to Penang port can utilize two methods, through the road network or using a double track railway. With a good road system and double track railway, it is an advantage for PBCT (by having two existing transportation modes). The remote port location in Thailand makes PBCT always the choice of clients from companies located in southern Thailand. Most of the clients who choose PBCT as their cargo transit hub are due to significant time savings compared to if the cargo delivery is made through the port located in Laem Chabang with an average distance of about 1,000 kilometers from the industrial area located in the south of Thailand. This distance is too far for the companies located in 14 provinces located in southern Thailand compared to the distance between PBCT and Penang Port which is only 170 kilometers where 95% of the cargo sent to PBCT will be sent to Penang Port. The existing railway network in Thailand also prioritizes passengers over cargo, making PBCT the best choice for clients in southern Thailand. Despite the long distance from several provinces in southern Thailand to PBCT, it is still a preferred choice because nearby ports in Thailand require longer travel times. Among the other advantages of PBCT is, most of the cargo will be transported to Penang Port via railway, and this will ensure the safety of the cargo transported because it will move from PBCT directly to Penang Port (point to point movement).

However, container management in PBCT still uses manual methods as opposed to the use of technology. However, the management of PBCT still feels that they can manage PBCT using existing conventional methods. Apart from the problem of using conventional methods and lack of use of technology, the increasingly limited storage space is another constraint for PBCT. Currently, almost 90% of the space in PBCT has been used with the concern that the remaining space is not able to accommodate the increase in containers. Currently, the types of products that can be stored at PBCT are limited to only rubber and wood-based products. Due to limited facilities, products other than rubber and wood based such as food-based products, frozen products or fast-moving consumer goods cannot be stored at PBCT. Products based on medical, electrical, and electronic as well as frozen products have not been managed by PBCT at this time due to many conditions that need to be complied with. In addition, this type of product requires careful care to prevent damage. For example, frozen products require special facilities and require adequate power supply and additional allocation and space. In addition, this type of product is usually in a low volume and difficult to manage while the charges are the same. PBCT currently refuses to take risks to prevent this product from being damaged when stored in the hub. Most of these types of products will be transported directly to the seaport using hauliers. Among other problems faced by PBCT is the loss of clients. When the Covid 19 pandemic hit, some PBCT clients started using the Bukit Kayu Hitam border. After using the service at Bukit Kayu Hitam border, some clients continue to use the service provided there due to more attractive offer. Currently, among the global issues faced is the problem of shortage of ships and empty containers due to the demand for various Chinese goods from the...
United States. Most of the existing ships have changed trade routes and shipments of goods from China to the United States due to the high demand of some types of products from the United States. The shortage of ships has resulted in a lot of cargo having to be transited over a long period of time at cargo hubs and ports in addition to increased rates of charges imposed by shipping companies. The problem of lack of empty containers also causes some difficulties. For now, a country like Thailand is a good country in terms of exporting goods but not in terms of importing goods. As a result, the demand for empty containers is constantly increasing. Other problems faced by PBCT also includes the loss of clients. When the Covid 19 pandemic hit, some PBCT clients started using the Bukit Kayu Hitam border. After using the service at Bukit Kayu Hitam border, some clients continue to use the service provided there due to more attractive offer.

On average, there are a maximum of 6 cargo trips will be delivered per day using the railway network and each trip can transport around 30 cargoes. This makes the transit time period of each cargo sent to PBCT very short. Its proximity to Penang Port makes PBCT the choice of clients from southern Thailand to use the services provided. The remote port location in Thailand makes PBCT always the choice of clients from companies located in southern Thailand. Most of the clients who choose PBCT as their cargo transit hub are due to significant time savings compared to if the cargo delivery is made through the port located in Laem Chabang with an average distance of about 1,000 kilometers from the industrial area located in the south of Thailand. This distance is too far for the companies located in 14 provinces located in southern Thailand compared to the distance between PBCT and Penang Port which is only 170 kilometers where 95% of the cargo sent to PBCT will be sent to Penang Port. In addition, the existing railway network in Thailand also prioritizes passengers over cargo, making PBCT the best choice for clients in southern Thailand. Despite the long distance from several provinces in southern Thailand to PBCT, it is still a top choice because nearby ports in Thailand require longer travel times. For example, the journey from Trang to PBCT is about 8 hours away. For the purpose of delivery to PBCT, companies or clients will plan a suitable travel time to deliver goods to PBCT either to leave late at night and arrive early in the morning at PBCT or leave early in the morning and arrive at the evening. Among the other advantages of PBCT is, the majority of cargo will be transported to Penang Port via railway and this will ensure the safety of the cargo transported because it will move from PBCT directly to Penang Port (point to point movement). Compared to Ipoh Cargo Terminal (ICT), PBCT has more advantages. ICT has more competitors especially hauliers due to its location in the center of Ipoh. Clients are more likely to use the services of hauliers because cargo can be delivered directly to the port compared to using trucks to ICT and then from ICT to the port. The advantage of PBCT is, goods will continue to be transported by rail from PBCT directly to the port.

### 3.2.2 Regional Authority – Northern Corridor Implementation Authority (NCIA)

Southern Thailand is a huge and growing market, and the reopening of the Malaysia-Thailand international border should be seen as an opportunity that needs to be seized immediately. Most of the clients from southern Thailand prefer Penang port because the freight cost is quite cheap compared to Songkhla, Laem Chabang or Bangkok ports. Among the main factors that make Penang port as the main hub for clients from southern Thailand is due to the location of Penang port which is located along the maritime trade route, better access to intra-Asian shipping services, more frequent shipping services and equipment limitations of Songkhla Port. From 2015 to 2030, it is estimated that there will be a surge of almost 86% of cargos that will enter Malaysia to be shipped to Penang port from Thailand. In 2015, 294,854 TEUs of cargos from southern Thailand entered Malaysia and it is expected that by 2030, this number will increase to 550,000 TEUs with a 5% growth per year based on a study by the National Port Strategy (NPS). This increase has led the government in collaboration with the private sector to build two more inland ports at the border, Perlis Inland Port (PIP) and Kota Perdana Inland Container Depot (KPICD). In 2019, there were a total of 243,225 TEUs of cargo from southern Thailand using the Penang port of which 62,841 TEUs were transported by road, 140,313 TEUs by railway and 40,071 by barge. Padang Besar and Bukit Kayu Hitam have the potential to continue to be developed as cross-border logistics hubs as both locations are located close to the entry points of Malaysia and Thailand. Currently, as the international logistics hub of Malaysia and Thailand, Padang Besar is a logistics hub that has transportation facilities by rail to seaport while Bukit Kayu Hitam has efficient road facilities to transport cargos entering Malaysia to Penang port. The capacity managed in Padang Besar is larger than Bukit Kayu Hitam. However, Padang Besar, which has the advantage of Rail to transport incoming cargos from Thailand, focuses more on low value cargos and also focuses on saving shipping costs and not focus on delivery time. As for the Bukit Kayu Hitam border, most of the incoming cargos are high value cargos apart from requiring a shorter delivery time. For goods with high value, most clients do not mind to pay higher shipping costs to ensure the goods delivered faster to the seaport.

To strengthen cross-border trade activities between Malaysia and Thailand, a Joint Development Strategy (JDS) was established. JDS acts like IMT-GT which controls cross-border trade activities between these
two neighboring countries (Malaysia and Thailand). Among other initiatives developed by the NCIA is to encourage collaboration through Public-Private-Partnership (PPP). Among the results of this collaboration can be seen through two Inland Port projects located in Kota Perdana and Chuping Valley. In Chuping Valley, Mutiara Perlis Sdn Bhd is a private company involved in developing the latest Inland Port which will play a role not only limited to transit center but will also play a role as a small manufacturing area, freight forward center and scope of PIP much larger than PBCT. PIP will be developed in 3 phases. The first phase will be able to accommodate up to 250,000 TEUs of cargos. The ultimate aim of PIP is to accommodate up to 1,000,000 TEUs of cargos when these 3 phases are completed by 2030. PIP will focus on various commodities produced from southern Thailand as well as the local market. For now, Perlis has an advantage due to its location close to the existing railway. Through the construction of PIP and KPICD, the latest target is to achieve more competitive logistics costs to attract investors to build enterprises around the northern part of the peninsula. For Bukit Kayu Hitam, Northern Gateway Sdn Bhd is currently working with PRT Logistics to build a logistics hub in the Kota Perdana area. At the same time, the government through the Ministry of Transport (MoT) in collaboration with KTMB is in the process of exploring the potential of rail line construction from Bukit Kayu Hitam. Several consultants have been appointed for this purpose and this proposal is currently in the interim stage. A study was carried out to explore whether the cargo entering through Bukit Kayu Hitam entrance is sufficient to construct new rail line. These two projects will not only focus on cross-border trade activities, but will also be involved in boosting economic development around the Malaysian and Thai border areas where several industries have agreed to do business in Padang Besar and Bukit Kayu Hitam. To further encourage economic growth in this area, the government will play a role by building rail spur line components, bonded road and flyover interchange. These improvements will further streamline travel between Inland Port and seaport. To further strengthen the inland ports that have been built, the government has taken the initiative by further strengthening the supportive components that can be provided. For example, the construction of a bonded road has received tender approval from the Ministry of Finance (MoF) and is expected in 2024. Supportive components will be ready to support inland ports. In addition, if there is sufficient capacity, the government in collaboration with KTMB is expected to consider the construction of railway from Bukit Kayu Hitam immediately. Another new road alternative is also expected to be built in phases starting from Changkat Jering to Padang Besar with a distance of 320 kilometers long. In terms of border trade, NCIA is also involved in developing the overall economic ecosystem at the border side. For now, NCIA is building a manufacturing industrial park to support economic border activities that happen at all the northern entry points and at the same time, NCIA is also focusing on any source of economics that can be created at all northern entry points such as tourism industry and try to develop Malaysia-Thailand border into a more holistic way. In developing the north of the peninsula, NCIA also takes into account the economic development of the south of Thailand.

3.2.3 Seaport Operator – Penang Port (PPSB)

One of the various seaports owned by MMC Group is Penang Port Sdn. Bhd (PPSB), also known as Penang Seaport. PPSB is regarded as the “gateway” port that primarily supports export and import activity, in contrast to other seaports on the peninsula that mostly function as transshipment ports. In 2021, it only recently began offering transshipment services. Additionally, it has good connections to the markets in southern Thailand, the Far East, and South Asia. In 2017, the port saw its maximum throughput of approximately 1.5 million TEU. Out of that total, one million TEUs came from domestic freight, with the remaining TEUs coming from the market in southern Thailand. The Penang port’s requirement to convey empty containers to Thai exporters is one of the “uniqueness” of the southern Thailand market. The majority of southern Thailand’s exports are goods made of wood and rubber. As of right now, the southern Thailand market accounts for 37% of PPSB’s overall throughput. It is projected that the cargo market in southern Thailand will expand by 3 to 5 percent per year. Seventy percent of PPSB’s cargo was sent to countries in the Far East, including China, Taiwan, Korea, Japan, and Hong Kong. USA (12%), Europe (4.5%), Australia (2.28%), India (2%) and other countries receive the remaining 8%. By 2050, PPSB wants to increase capacity to a maximum of 7 million TEUs. There are three primary means of transportation for the market in southern Thailand: road, rail, and barge. Since rail is the least expensive and safest means of transportation, around 50% of the cargo from the southern Thailand market is transported by rail. Barge transportation comes in second place. As of right now, Padang Besar Cargo Terminal (PBCT Inland port) is the only rail connection point between Penang seaport and the southern Thailand market. The cargo sector in southern Thailand is expanding and has a lot of promise. PPSB currently only has half of the shipment from southern Thailand under control. The PBCT Inland port’s capacity restriction is partially to blame for this.

Southern Thai shippers favor Penang Seaport over their own seaports and inland ports, mostly because of its superior facilities, services, and connectivity. The closest harbor to the southern Thailand market, Songkhla Port, is lacking in amenities and services, but more significantly, it lacks the natural depth needed to accommodate larger ships. According to PPSB study, the possibility of a
It is imperative that pertinent agencies, including synchronized to save time and improve efficiency. are constructed, the inland port and PPSB can be individual vessels. When the two new inland ports groups containers into groups that correspond to system by implementing the “block system,” which emulates the Penang seaport’s container management that the operator of the cross-border inland port guarantee higher service efficiency. It is imperative machinery, and container management systems to The new inland ports must use improved technology, ensuring seamless operations and freight movements at the border is of utmost importance. This is where inland ports play a crucial role. The effectiveness of the multimodal movements from the border to Penang Seaport must thereafter be guaranteed. It is necessary to expand and enhance the rail network’s connectivity from the harbor, inland ports, and border. Costing is another crucial factor. Thai shippers are drawn to our services by Malaysian inland ports’ competitive price and the seaport’s offerings. Penang Seaport has the edge in terms of efficiency and connectivity, despite not being the least expensive. Capacity and service efficiency at the border shouldn’t be an issue going forward with the building of two more interior ports. But the emphasis should be on offering effective services within the management of inland ports, including assigning capable operators to lead the operations.

Ensuring seamless operations and freight movements at the border is of utmost importance. This is where inland ports play a crucial role. The effectiveness of the multimodal movements from the border to Penang Seaport must thereafter be guaranteed. It is necessary to expand and enhance the rail network’s connectivity from the harbor, inland ports, and border. Costing is another crucial factor. Thai shippers are drawn to our services by Malaysian inland ports’ competitive price and the seaport’s offerings. Penang Seaport has the edge in terms of efficiency and connectivity, despite not being the least expensive. Capacity and service efficiency at the border shouldn’t be an issue going forward with the building of two more interior ports. But the emphasis should be on offering effective services within the management of inland ports, including assigning capable operators to lead the operations.

The new inland ports must use improved technology, machinery, and container management systems to guarantee higher service efficiency. It is imperative that the operator of the cross-border inland port emulates the Penang seaport’s container management system by implementing the “block system,” which groups containers into groups that correspond to individual vessels. When the two new inland ports are constructed, the inland port and PPSB can be synchronized to save time and improve efficiency. It is imperative that pertinent agencies, including Customs and Immigration, support the cross-border inland port to guarantee smooth freight transportation from the southern Thai market. This pertains to basic concerns including document processing, inspection procedures, and the use of improved information technology by clients and agencies alike. All things considered, all parties involved in the border, such as the inland port operator and pertinent authorities and players, ought to prioritize providing customer-focused services and minimizing red tape and bureaucracy. Levies are viewed as needless and have the potential to hurt Penang harbor’s competitiveness in the market when applied to Thai merchants’ “transit” cargo that is exported through the harbor. The aforementioned factors and concerns hold significance not only for our inland and seaport’s continued existence, but also for all other local stakeholders.

For the purpose of the nation’s economic growth, Malaysia’s inland port needs to be developed. When deciding whether or not to locate a manufacturing hub in a certain state, there are a number of factors that must be considered. For instance, a state will be a major supplier of latex if it has an abundance of natural resources such as latex or rubber latex. Other examples of such resources are rubber latex. As a result, the component will encourage factories to relocate closer to that location. In addition to this, the government is dependent on the presence of manufacturers in order to generate additional employment opportunities for the populace. As a result, we ought to modify our approach so that we don’t just concentrate on the low-end and low-value businesses, which consist primarily of the export of our natural resources. According to the information provided by the source, natural resources such as oil should be processed into by-product items so that their economic value can be increased. In every state, natural resources are the foundation of the manufacturing industry. Because of this, several states establish a variety of different kinds of industry. The same is true for Malaysia, in that we occupy our own distinct space in terms of production. For instance, the east coast is abundant in oil and gas products, whereas the west coast, and particularly the peninsular site, places a greater emphasis on the production of high-end and high-value electronic goods. The informant further stated that everything is about the many business opportunities that are available.

According to the informant, Thailand naturally has difficulty exporting their rubber products, by-products, and latex due to the nature of their industry. In most cases, they ship their goods out of Thailand through the port of Penang since, in comparison to shipping via land from Thailand, it is less expensive and more convenient. Thailand, particularly in the southern area
such as Surathani, discovered that Malaysia is the most cost-effective destination for the export of their latex through the Penang Port. In order for them to be able to export via Thailand, they will need to pick up an empty container from Singapore, relocate it to Bangkok port in Thailand, and then have Bangkok port reposition it to Surathani. Finally, they will need to pick up the container they sent from Surathani. Therefore, the cost of positioning that empty container to the end facility in Trang, or anywhere else in the southern portion of Thailand, will be more than the cost of ocean trade. As a result of Thailand’s increasing reliance on its ports, this is the possibility for growth for the Penang Port. In addition to taking in containers from Thailand, the Port of Penang is increasingly becoming a hub for the transportation of goods of high-end value. On the other hand, Penang Port is located in close proximity to silica sand resources, which are essential for manufacturers of solar panels. Because of its advantageous position, the logistical costs of manufacturing at Penang Port are significantly reduced, making it the port of choice above others. The fact that Penang Port serves as a transshipment point for Southern Thailand gives it an edge at the present time. This will establish the port as the international port before the Surathani create their own port.

3.2.5 City Inland Port - Ipoh Cargo Terminal (ICT)

Ipoh Cargo Terminal (ICT) is the first inland port in Malaysia, and as a whole is owned by 5 shareholders. Keretapi Tanah Melayu Berhad (KTMB) is the major shareholder, followed by Perak State Development Corporation (PKNP) and 3 other port authorities as shareholders, namely Port Klang, Penang Port, and Johor Port. A total of 45% of ICT shares are owned by the port authority and due to this, ICT is chaired by a representative of the Ministry of Transport (MoT) of Malaysia. Ipoh Cargo Terminal Sdn Bhd was established in November 1989 and has been operating for more than 30 years besides being the first Inland Port in Malaysia and also in Southeast Asia. Compared to PBCT that is dedicated as a cross border inland port, ICT is designated to serve hinterland industrial area in Ipoh, connecting the Kinta Valley Industrial Area to North Port, West Port, and Penang Seaport. In ICT, 90% of cargo transported to seaport using railway, and ICT currently serves most clients shipments through North Port or West Port and also transport shipments from North Port or West Port. ICT serves to cater industry mostly within Kinta Valley, which is an industrial area located about 32 to 35 km radius from the ICT location. The nature of ICT business is diversified. Geographically, ICT is a hinterland that is located quite far from the seaport but still plays the same role as the seaport. Every cargo from ICT sent to the seaport has gone through a custom clearance process and when these cargos reach the seaport, the custom clearance process no longer needs to be carried out, further facilitating exporters and importers in the Perak area. In the past, ICT delivered 70% of cargos to Northport and 30% to Westport, this percentage is now reversed where 70% of the cargo delivered through Westport. Previously, the journey from ICT to seaport would take up to 12 hours. With the double track railway, travel time has been successfully shortened to less than 7 hours. Most of ICT clients consist of medium and small players or mineral related companies because Kinta Valley is famous for various types of minerals. ICT is also involved in transporting rubber and timber products and there are various industries that ICT can cater but clients who run cement-based businesses mostly do not deal with ICT but they will deal directly with KTMB. ICT also has bonded license and Public Licensed Warehouse. In Perak, there are only three parties that have a Public Licensed Warehouse and this is an added value to ICT apart from ICT also having its own forwarding license. In contrast, PBCT is not an Internal Clearance Depot compared to ICT and because of that, the whole area of ICT is under customs control and there is a customs administration office located at ICT.

At ICT, the main business is mostly related to the arrangement of transportation and ICT provides door to door services which include delivery services from/to the factory as well as services as a shipping agent. ICT also provides services as a forwarding agent, shipping line agent and direct shipper agent where as a direct shipper, exporters and importers (ICT’s clients) have direct account with ICT. ICT sees hauliers as the main competitor because hauliers’ companies have more flexibility in terms of schedule as train travel will be based on fixed schedule. Clients do not mind paying more to use the services of hauliers because some of them have constraints on production or any other issue (cannot depend on a fixed service train schedule). Currently, the capacity of ICT is not an issue and ICT can still accommodate incoming and outgoing containers. ICT itself is in the process of recovery as a result of the spread of the Covid-19 pandemic. The 2-year period of the spread of the Covid-19 pandemic was a difficult time for ICT. When the Movement Control Order (MCO) is implemented, many industries close down. Only when the MCO in phase 3 began to be loosened, these industries reopen. Among other challenges faced is the problem of shortage of ships and slots in ports which causes demand to outpace supply. This is similar to one of the challenges faced by PBCT. When supply was higher than demand, shipping companies began to take advantage by increasing charge rates to importers and exporters. The charge rate is sometimes not only doubled, but sometimes more than tripled. The logistics industry emphasizes the cost aspect. Location elements such as the geographical advantages of ICT and PBCT helped a lot in developing these two inland ports. In comparison, the other two inland ports, the Segamat Inland Port (SIP) in Johor, and Nilai Inland Port (NIP) in Negri Sembilan are still struggling to function.
as a comprehensive inland port. The location of SIP and NIP which are far from the railway and only rely on road transport makes these two ports less popular. In addition, NIP is located only around 80km from the Westport and Northport, making direct delivery to these seaports more cost effective instead of using NIP facilities. In the future, ICT is considering a proposal to relocate operations to a new Area located at Silver Valley Technology Park (SVTC) located in Hulu Kinta. SVTC is a new industrial area and 50 acres of land has been allocated to ICT for development and this area is double the 24 acres in the current location.

4. SWOT ANALYSIS

Due to the fact that there is only one existing cross border inland port to date, the SWOT analysis is carried out using PBCT as a reference point. Findings from this analysis will be used to develop TOWS analysis in the following section.

4.1 Strengths

Peninsular Malaysia has two national borders which is in the north it shares border with Thailand and adjacent to Singapore in the south. In the north, PBCT is the only inland port serving the border so far and is well connected with the rail network and Penang seaport. Its strategic location right at the border has enable seamless transfer of cargo from Thailand in which the on-site customs services and rail connectivity plays major role. The availability of access routes to various cities and major infrastructures shows the strength of these cross border inland ports. The development masterplan by NCIA for the northern corridor economic region of which includes upcoming development of bonded road and wider rail connectivity will drive the growth of inland port further. The other strengths of cross border inland ports are low freight rates, reliable transport operations and availability of supporting infrastructure.

4.2 Weaknesses

The main issue of PBCT is the capacity. Due to its location, expansion of capacity can no longer be done. The capacity limitation has prevented PBCT from taking more incoming cargo from southern Thailand. There is a limited area of total containers stacking yard to accommodate both laden and empty containers. The port is managing its container operations semi-manually due to lack use of technology. Container management system is also not aligned to the system used at seaport. The imbalance freight volume between movement of laden and empty containers has also affected the port’s already limited capacity. Empty containers have used up substantial part of the yard usage. The yard usage for laden container is estimated to average around 3000 TEUs a month and this has caused the port opportunity loss of around 10%.

4.3 Opportunities

The growth of economy in southern Thailand provinces and the establishment of Southern Thailand Economic Zone (SEZ) has presented massive opportunity to the cross border inland port. It is projected that containers movement from southern Thailand could reach up to 500,000 TEUs annually by 2030. This includes the growth of southern Thailand rubber city and halal industry. The halal industry in Thailand has already contributed up to 449 billion Baht in export value in 2020. The export from Thailand’s halal industry of which mostly coming from the southern provinces is projected to growth at a steady rate of 5% annually and capturing up to 20% of global halal market. Movement of high value cargo and fast-moving consumer goods (FMCG) are also expected to increase significantly over the next 10 years and this could present opportunity for PBCT to tap in the market. Currently movement of cargo for high value, sensitive and fast-moving consumer goods are shipped via the Bukit Kayu Hitam border. Inability to capture this market is a big loss of opportunity for PBCT. The expansion of Penang seaport in terms of capacity and infrastructure has also strengthen its position as the main gateway port for southern Thailand exporters. This in turn would increase demand for cross border cargo movement via the inland port at the border. The Malaysian government via its Northern Corridor Implementation Agency (NCIA) has also launched a 10-year plan for massive logistics infrastructure development which includes works on bonded roads and wider rail network connecting inland port to the seaport.

4.4 Threats

Main competitions coming from hauliers in which so far have been trusted by the Thai exporter to ferry more valuable goods. Almost all goods from southern Thailand that uses PBCT services are wood and rubber-based products. The competition is high as to ensure cost of operations at a competitive level. Another threat is the pollution it produces which poses a risk to the surrounding communities. Residents’ concerns can stop inland port operations if they are not handled properly. Southern Thailand political issues may be a threat as well. Incidents are reported in some areas in Southern Thailand that can cause security concerns. Other notable threats to cross border inland port are limited political support and funding resulting in poor condition of many waterways and inland ports, loss of markets due to energy policy (e.g. coal and fossil fuel transports), impact of high-oil prices on various industries, further liberalisation, efficiency and interoperability of rail transport markets, possibility of introduction of long and heavy vehicles for road haulage, and increased restriction of banks for investment as a consequence of the crisis. For PBCT and other incoming cross border inland port in Kedah and Perlis, the potential growth of...
southern Thailand’s very own inland port and seaports also poses serious threats in the future.

5. TOWS ANALYSIS

According to Weihrich, (1999), TOWS Matrix provides a framework for developing alternative strategies by analyzing internal strengths and weaknesses and integrating them with external opportunities and threats. The four factors (Threats-T, Opportunities-O, Weaknesses-W, and Strengths-S) can become the basis for four core strategies aimed to reduce threats and overcoming weaknesses (WT), exploiting opportunities to overcome weaknesses (OW), leveraging internal strengths to mitigate external threats (ST), and most importantly to exploit internal strengths in order to maximise opportunities (SO). For Malaysian cross border inland port, the economic growth of southern Thailand and northern economic region of Malaysia has presented huge opportunities. With the expansion of Penang seaport and its competitive edge as the preferred gateway port for southern Thailand exporters, the connecting role of cross border inland port has becoming more crucial. Nonetheless, internal weaknesses and external threats has presented significant challenges to the inland port. Using TOWS Matrix designated for Malaysian cross border inland ports, strategies for WT, OW, ST and SO are proposed. The strategies are illustrated in Table 2.

5.1 Weaknesses and Threats (WT)

According to Weihrich (1982), a business that suffers from major shortcomings is frequently forced to employ survival strategies. The Malaysian cross border inland port did not need to resort to a survival strategy despite having some flaws and potential dangers, as a result of the enormous opportunities it possessed and the strengths it possessed. Conquering the weaknesses, turning them into strengths, and reducing the risks associated with future threats was a method that was more appropriate. In the case of the cross-border inland port in Kedah and Perlis, it is necessary to overcome the shortcomings by having a knowledge of the potential risks, using the latest technology in its container management, capacity development, and having excellent access to better infrastructure such as a rail network. It is possible that the potential development of an inland port and the expansion of local seaports in southern Thailand could provide a threat of competition to the cross-border inland port and seaport in Malaysia. Similarly, the possibility of a pandemic occurring all over the world, the devaluation of a currency, and the unpredictability of shipping lines are all significant dangers. Because of this, the best way to move forward is to establish a strategic partnership between all of the inland port operators at the border, the seaport, and any other essential parties in order to guarantee that Malaysian ports continue to be the most popular option for shippers in southern Thailand. Revision of the tax policy for transit cargo, as well as the functions of border agencies like as Customs and Immigration, to enable the seamless movement of cargo, is essential for strengthening the competitiveness of Malaysian cross-border inland ports and mitigating the effects of external threats.

5.2 Weaknesses and Opportunities (WO)

The southern Thailand cargo market presented massive opportunity for Malaysian inland and seaports. The growth of Southern Thailand Economic Zone (SEZ) and the rubber city are substantial. The market can reach up to 1 million TEUs in the future. However, huge investment is also needed to build good infrastructure to support the inland ports especially our rail networks and land bridges connecting the border to the seaport and the hinterlands. Eliminating the bottlenecks and providing seamless services at the border are crucial to attract more cargo from southern Thailand. Current issues at the existing inland port (PBCT) are capacity, limitations of rail services, container operations, and limited technology adoption. With significance growth of southern Thailand economy vis-à-vis cargo movement to Penang seaport, establishing new cross border inland ports and expansion of rail network are imperative. Adoption of technology and Penang port-oriented container management system in Malaysian cross border inland port is also important to improve cargo services.

5.3 Strengths and Threats (ST)

Competitive pricing, experienced logistics players, strategic location, capability and connectivity of Penang seaport are the strengths that can be leveraged to overcome potential threats. Penang seaport remains the preferred choice for southern Thailand exporters due to its location, pricing, capability, and connectivity. It needs massive investment for the Thai government to enhance its local sea and inland ports in the southern region due to its geographical limitations, and lack of facilities as well as connectivity to the far east market. The local seaports in southern Thailand are unable to accommodate big vessels due to lacking in depth. If the Thai government continue with the long-term plan to expand and develop bigger seaports and inland port for the southern region, this will pose serious threats to its Malaysian counterparts. To remain competitive, Malaysian cross border inland port must be able to overcome these threats by strengthening its port facilities and capacities, pricing strategy, rail and road connectivity, and service efficiencies. Collaborations with stakeholders from southern Thailand is the way forward to mitigate the competitive threats.
5.4 Strengths and Opportunities (SO)

In general, successful firms build on their strengths to take advantage of opportunities. Cross border inland port is no exception. The strength of Penang Port as the ‘gateway seaport’ plays crucial role in helping the inland port at the border. With the establishment of NBCT as well as the capability and connectivity of PPSB, more incoming cargo from southern Thailand can be routed to Penang. That is why cross border inland port must capitalize on this and embark on its own expansion. Development of more cross border inland ports to increase the capacity is a priority. Total logistic solutions including services for halal logistics are imperative to capture the fast-growing halal market in southern Thailand. With rapid expansion of both Malaysian cross border inland ports and Penang seaport, opportunities from the growth of southern Thailand cargo can be captured. Revision to the already competitive pricing as well as tax policy for the transit cargo would add extra competitive dimension to the Malaysian ports.

6. MANAGERIAL DECISION AND CONCLUSIONS

The creation of a Cross Border Inland Port is expected to yield significant economic benefits across multiple sectors. In relation to prospects, it is projected that by 2030, there will be a notable increase of approximately 86% in the volume of cargo entering Malaysia for transportation to Penang port from Thailand. Clients from Southern Thailand exhibit a preference for Penang port as a result of its comparatively lower freight cost, which is 25% less than that of their local ports. It is evident that Songkhla Port faces restrictions in terms of equipment and facilities. Nevertheless, PBCT is not without its challenges, particularly in relation to its constrained storage capacity and technological limitations. According to the analysis, PBCT is found to be effective in handling low value items, including those made of latex and wood. However, it is unable to capture products such as food-based items, frozen products, and fast-moving consumer goods. The government has undertaken an initiative to enhance development at the two Malaysia-Thailand border crossings by implementing three complementary components of inland ports, including a rail spur line, a bonded road, and a flyover interchange. The creation of a Rubber City within the Southern region Industrial Estate, situated in Ban Chalung, Hat Yai district, Songkhla, has been proposed. Malaysia has recently inaugurated its inaugural rubber eco-industrial park, known as Kedah Rubber City (KRC). This development holds significant promise, as it is estimated to generate over 15,000 employment opportunities by the year 2025.
Furthermore, it is anticipated that this initiative would attract investments amounting to RM10 billion. However, it is imperative to address certain difficulties that require particular consideration. For example, the alteration of trade routes and shipments between China and the United States has been influenced by the increased demand for specific sorts of items originating from the United States. This has resulted in a scarcity of vessels available for transporting cargo from the Penang Sea port. However, the forthcoming cross-border inland port in Kota Perdana, Kedah (BKHIP) is also encountering several challenges. As an example, it is not integrated with the existing railway infrastructure. The challenges arising from the inadequate deployment of information technology at the border are widely recognized. However, an additional challenge faced by the Cross Border Inland in Kota Perdana is the strategic plan implemented by the Thai government to construct a “Land Bridge” connecting Chumphon Province on the Gulf of Thailand, as well as the expansion of the deep-sea port in Ranong Province on the Andaman Sea. These developments are expected to introduce new competition to the region.

The TOWS analytical framework is utilized to identify and recommend growth and mitigation strategies. As elucidated in Section 5, the establishment of sustainable inland ports necessitates the presence of robust supporting infrastructures and information systems. These include, but are not limited to, direct rail connectivity and the utilization of cutting-edge technology, which are crucial for ensuring the smooth and efficient operations of cargo handling. The impending creation of two additional cross-border inland ports, along with the notable increase in cargo transportation from Thailand and the extension of capacity at Penang Sea port, highlights the heightened need of efficient cargo operations across the border. The government, through NCIA, should prioritize the establishment of sufficient infrastructure, including well-developed road networks and direct rail connections, to provide efficient transportation to all Malaysian cross-border inland ports. Establishing strategic alliances with logistics businesses and authorities in Southern Thailand is crucial in order to mitigate future competition. The emergence of new markets, namely in the realm of halal products and halal logistics, presents significant prospects that should not be overlooked. The government should also undertake a comprehensive evaluation of its tax policy concerning transit cargo in order to maintain the status of Penang Sea port as a preferred gateway port for exporters from southern Thailand. The Custom Department plays a crucial role in ensuring operational efficiency at the inland port. Overall, by establishing three cross-border inland ports to manage incoming goods from Southern Thailand, Malaysia has enhanced its position as the primary logistics center for exporters in Southern Thailand. Additionally, this development has positioned the Penang Sea port as the ideal gateway port. The viability and competitiveness of Malaysian cross-border inland ports are contingent upon collaborations with Thailand and local stakeholders.

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REFERENCES


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