



Developing of floating market's logistics and supply chain management in Surat Thani province Thailand

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Abstract

This research aimed to study operational problems on logistics and supply chain of floating markets in Surat Thani. This study, moreover, sought to promote and develop an efficient and effective operational model of the floating market stores in Surat Thani, in line with supply chain operation reference. The results found inter alia that the floating markets in Surat Thani had no their website and the tourist service center, making the perception and searching information of tourists difficult. Differently, Pattaya Floating Market had a website, making communication among tourists, merchants in the market, and Pattaya Floating Market accurate and reliable, and thus including good marketing channel. Floating markets in Surat Thani previously planned the production and sales, by qualitative forecasting, using experience and weather conditions, resulting in the stock of raw materials unfit to the needs of customers. After applying the operational model, it found that the stock of raw materials from twenty-two sample stores in Pracharat Bang Bai Mai Floating Market and the fourteen sample stores in Ban Don Floating Market fit the needs of customers during weekdays. While, three sample stores in Pracharat Bang Bai Mai Floating Market and eleven sample stores in Ban Don Floating Market had raw materials unfit for the needs of customers during weekdays, causing the products not to be sold.

Keywords: Supply chain operation reference, logistics, management, forecast, floating market.

Introduction

The current trend of tourism in the world is changing. Tourists are increasingly interested in eco-tourism or sustainable tourism since it makes them get in touch with nature and able to learn about local cultures, including the way of life of villagers. Among all the tourist attractions, flea markets and floating markets clearly display the way of life, tradition and culture, in rural areas in all regions of Thailand and ASEAN. These markets are regarded as unique tourist attractions in Thailand. Surat Thani, Thailand, is the province that has diverse cultures, traditions and ways of life associated with a river, from the past to the present. It is the sixth largest province in the country with the main rivers, namely Tapee and Phum Duang. The Tapee River, derives from the Nakhon Si Thammarat Mountain. It flows through Chai Buri District, Phrasaeng District, Wiang SA District, Khian SA District, Ban Na San District, Ban Na Doem District, Phunphin District, and it flows into the Gulf of Thailand at Mueang District. It has a length of approximately 230 kilometers. While, Phum Duang River derives from Saeng, Sok, Yan Canals. It flows through Ban Ta Khun District, Khiri Rat Nikhom District, and Tha Chang District. It meets with the Tapee River in Phunphin District and has a length of about 80 kilometers. Both these rivers create a community way of life and have floating markets, such as the Pracharat Bang Bai Mai Floating Market and Ban Don Floating Market. This research studies the logistics and supply chain operations of the floating markets in Surat Thani, in order to know the problems of floating markets in Surat Thani, including promoting and developing an efficient and effective operational model for the floating market stores in Surat Thani according to the Supply Chain Operation Reference (SCOR Model) and this is in response to preparation at the provincial level of the country. The idea is to generate incomes for the people and develop tourist attractions in

Thailand to be able to compete in the ASEAN and the global markets systematically by considering the economic potential of various societies and cultures in these areas.

Objective

This study relates to operational problems on logistics and supply chain of floating markets in Surat Thani, and seeks to promote and develop an efficient and effective operational model for the floating market stores in Surat Thani, so that they can become a mechanism for strengthening local, national and international developments.

Methodology

Data collection

The researcher collected data from two sources. Data was collected from interviews with specific persons according to set criteria. The sample included 12 market executives and 70 tourists, who were faced with issues of the logistics and supply chain operations of floating markets in Surat Thani in order to compare with Amphawa Floating Market, Pattaya Floating Market, and Don Wai Floating Market. This was so as to know the problems of logistics and supply chain operations of floating markets in the Surat Thani. The researcher interviewed vendors who have been selling products and foods in the market for more than three years. In addition fifty stores were questioned about the operating model based on the supply chain system model. Use was made of a structured questionnaire which took an average of about 30-60 minutes per interview. The open-ended questions were used to allow respondents to express their opinions and suggestions. Unofficial observations on Saturday and Sunday, were also made to see the supply chain management aspects of stores. The second source of data was secondary data collected from reports, academic articles and multimedia presentations, Surat Thani Floating Market documents, books, textbooks, websites, and related research, and also by data analysis. The study was qualitative and the data analysis was mainly based on logical analysis by analyzing the content obtained from interviews, observations, as well as by using relevant theories, articles, and research.

Conceptual Framework

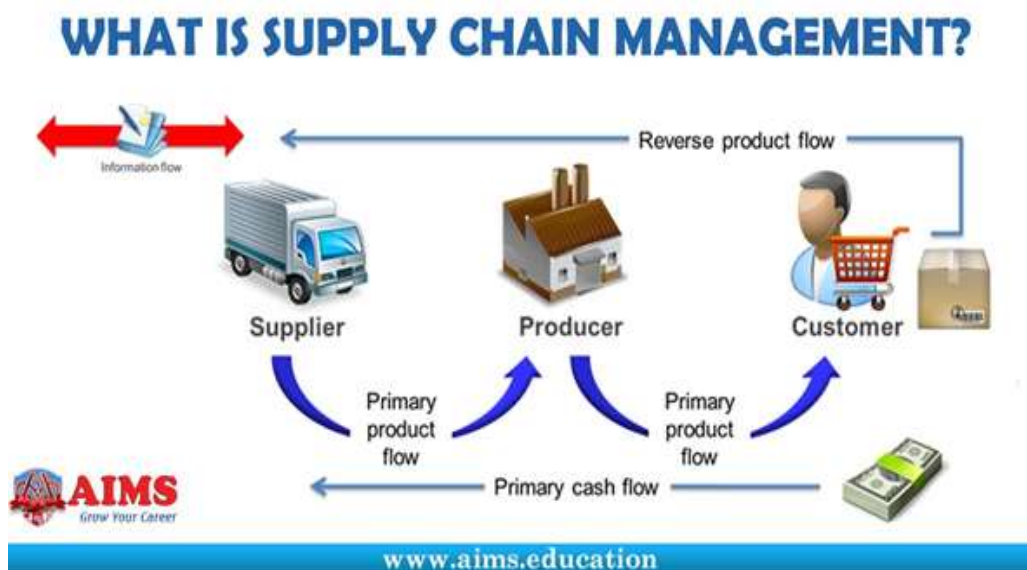


Figure 1. Research conceptual Framework of Supply chain management
Source : AIMS Education, UK (2016)

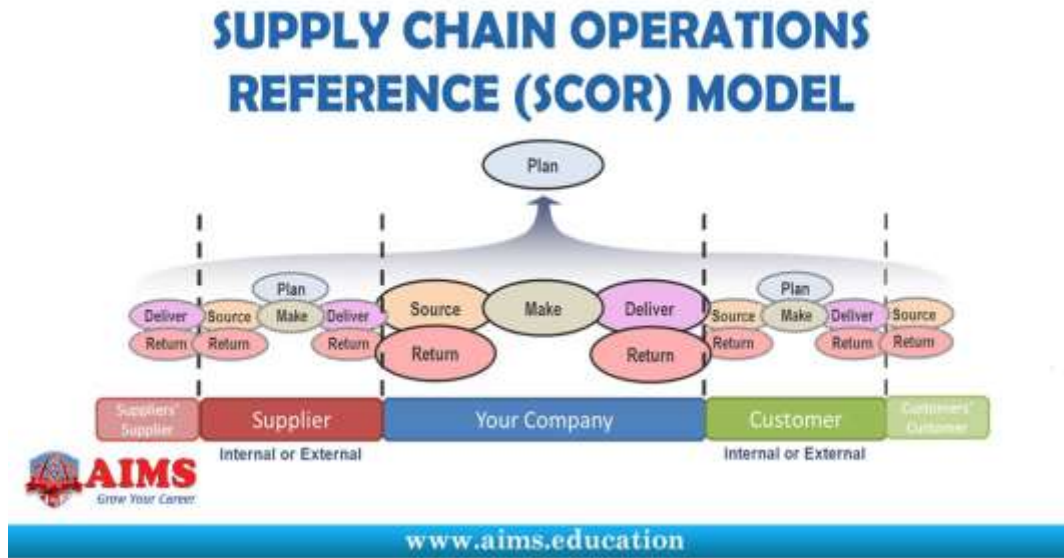


Figure 2. Research conceptual Framework of SCOR Model
 Source : AIMS Education, UK (2015)

Results

In comparing logistics and supply chain operations of the Pracharat Bang Bai Mai and Ban Don Floating Markets with Amphawa Floating Market, Pattaya Floating Market and Don Wai Floating Market, it was found that the information flow of the Pracharat Bang Bai Mai Floating Market was driven by communication via mobile phones and online platforms such as Facebook. Pracharat Bang Bai Mai Floating Market had a broadcasting system that promoted the area to tourists and offered market information from time to time during working hours. This helped to increase communication efficiency between merchants and tourists in the market. On the other side, Pracharat Bang Bai Mai Floating Market had no website or tourist service center. This made it difficult in tourists' perceptions to search for information. The entrance to the floating market, in addition, had no instruction signs for entrance-exit to promote and attract tourists. Pattaya Floating Market had clear signs and their own website. This made the communication among tourists and the merchants in the market, and Pattaya Floating Market in general, accurate and reliable, including a good marketing channel. In Pracharat Bang Bai Mai Floating Market, there were zones in the shopping area, comprising an upper zone and an inside zone, and there was also a sightseeing boat service.

As a result, people in the community had some income from selling products and promoting tourism in Surat Thani by emphasizing the natural state of things and the traditional ways of life. The market, however, had narrow and unclear footpaths. During both regular days and festivals, the market did not charge any parking service fees and provided sufficient parking spaces be able to support over 500 tourists' cars in the Bang Bai Mai temple and school areas. Nevertheless, in such areas, there was no parking line causing tourists to park in a mess and waste parking space. The bathroom services were clearly labeled and they did not charge any service fees. In addition, the market has separate general waste and recyclable waste areas. The area around the market was generally clean and provided some equipment to help tourists. The shops in the market received cash only, and within the market, there was no automated teller machine for tourists. This caused the money circulation, the exchange of goods, and the distribution of money in shopping in the market to take far more time. For the development of the area and to support customer satisfaction, clients could complain and report information about the Bang Bai Mai Floating Market at Bang Bai Mai Sub-district Headman's Office. While in Ban



Don Floating Market, it was found that tourists visiting could find information on Thai tourism through websites, the Office of the Tourism Authority of Thailand, Surat Thani, located in front of the market, next to the main road, and from the Surat Thani Municipality. Ban Don Floating Market has a broadcasting system that promotes tourists knowledge about the market and information is broadcast periodically during office hours, which greatly improves communication efficiency between merchants and tourists in the market. On the other hand, Ban Don Floating Market Floating Market had no website or tourist service center. This made it very difficulty for tourists' searching for information.

The entrance to the floating market, in addition, had no instruction signs for entrance-exit to promote and attract tourists. The Pattaya Floating Market had clear signs and their own website. This made the communication among tourists, merchants in the market, and Pattaya Floating Market accurate and reliable, including the use of a good marketing channel. In terms of store management, Ban Don Floating Market had zones in the shop area, comprising the flea market located on the Tapee riverside, and the floating market in the Tapee River. Conversely, due to the narrow and unclear footpath in both two zones, the tourists tended to crowd and passed on rather inconveniently. This caused obstacles in the sightseeing walk and in buying goods from the shops, especially during the festivals. The market did not charge for parking lot service fees and supported 50 parking lots, which were less than all those of the floating markets. In addition, there were no parking spaces demarcated, causing a disorganized parking approach and a lot and wasted parking spaces. It also found that the bathroom service fees were 5 baht per visit and these were used in order to get revenue to develop services like the Amphawa Floating Market and Pattaya Floating Market. It was also found that in the market there was no sign to the bathroom for tourists, and this was different to the Amphawa Floating Market, Pattaya Floating Market, and Don Wai Floating Markets which had signs to the bathroom to facilitate movements by tourists clearly. In terms of cleanliness and safety, the market was near the police station within one kilometer, like the Amphawa Floating Market and Don Wai Floating Market, including the area around the market was clean and organized. In addition, there was no leak in the river pontoon area, but Don Wai Floating market tourists had a risk of falling over the Amphawa Floating Market, Pattaya Floating Market, and Don Wai Floating Market. It also found that merchants in the market received cash payments as they do in all markets and there was also an automated teller machine at a distance of 200 meters for tourists, causing the circulating of money, the exchanging goods, and the distributing of money in spending on products in the market in an efficient manner.

For the development and customer satisfaction features, it was found that the market did not have a tourist and merchant service center like Amphawa Floating Market and Don Wai Floating Market. Tourists and merchants could complain and report information about Ban Don Floating Market at Surat Thani Municipality, Department of Public Health and Environment, and Surat Thani Floating Market Club, 18, Phakdi Anuson Road, Talat Subdistrict, Mueang District, Surat Thani.

Promotion and development of the operational model of the Pracharat Bang Bai Mai Floating Market

In relation to planning, it was found that previously during weekdays all 25 sample stores planned operations by means of qualitative forecasting, using experience and weather conditions, in the production and sales, often resulting in the stock of raw materials unfit to the needs of customers. Later the operation model of the sample shop was developed by using the amount of sales in the past to forecast the needs of customers in the future. By quantitative forecasting, it was found that the stock of raw materials from stores from the 22 sample stores fit the needs of customers during weekdays and 3 sample stores had raw materials unfit the needs of customers during weekdays. The main target groups were families who come to relax on



holidays, food consumers, and conservative tourists. In sourcing, it was found that the products sold in the Pracharat Bang Bai Mai Floating Market, were mostly locally produced agricultural foods. It also found that the stores in the market had raw material supplied from the gardens of the villagers in the community directly, not through any middlemen, including clear delivery-dates, resulting in obtaining raw materials according to the desired goals and lower production costs. In the make/work processes, it was found that the shops in the market sold local foods, resulting in fresh produce every time. The stores also determined clear employee duties, making the storefront sales process and customer service very efficient. In management/delivery, it was found that 25 sample stores did not have delivery services. Customers could only buy products in the Prachachat Bang Bai Mai Floating Market. It was also found that the shops have developed new products and menus according to customers' recommendations in order to meet their needs. It also found that the 16 sample stores would return the products in the case of a shop mistake only, while the other 9 stores did not accept returns in any cases due to the quality assurance issues.

Promotion and development of operational model of Ban Don Floating Market

In planning, it was found that previously, during weekdays, all 25 sample stores planned by qualitative forecasting, using experience and weather conditions, to guide them in the production and sales, resulting in the stock of raw materials unfit to the needs of customers. After the operation model of the sample shop was developed by using the amount of sales in the past to forecast the needs of customers in the future, i.e. quantitative forecasting, it found that the stock of raw materials from stores from the 14 sample stores fitted the needs of customers during weekdays and 11 sample stores had raw materials unfit for the needs of customers during weekdays since the products were mainly aquatic animals from local fishermen. The main target groups were families who came to relax on holidays, food consumers, and conservative tourists. In sourcing, it was found that the products sold in the Ban Don Floating Market, were mainly locally produced agricultural foods and aquatic animals. It also found that the stores in the market had raw material supplied from the local fisherpersons and from the gardens of the villagers in the community directly, not through middle-men, including clear delivery dates, resulting in obtaining raw materials according to set goals and lower production costs. In the make/work processes, it found that the shops in the market sold local foods and aquatic products, resulting in fresh products every time. The local fishermen sold aquatic products as much as possible. If the products ran out, customers needed to buy the next week. In management / delivery, it was found that 25 sample stores did not have a delivery service. Customers could only buy products in the Ban Don Floating Market. It was also found that the shops have developed new products and menus according to customers' recommendations to meet the needs of customers. It also found that the 8 sample stores would return the products in the case of a shop mistake only, and the other 17 stores did not accept returns in all cases due to their quality assurance measures.

Conclusion and discussion

From the research on the development of the logistics and supply chain model of the floating markets in Surat Thani and logistics and supply chain operational problems of the floating markets in Surat Thani, the results revealed that the Pracharat Bang Ban Mai Floating Market and Ban Don Floating Market had no website and also no tourist service center, making the perceptions and searching information of tourists difficult. In addition, the entrance to the floating markets had no instructional signs for entrance-exits to help promote and attract the tourists. The Pattaya Floating Market had clear signs and a website, making communication among tourists, merchants in the market, and Pattaya Floating Market accurate and reliable, including good the use of a good marketing channel. The walkway in the market, besides, was narrow and had no clear path. The parking area of Ban Don Floating Market was not enough, including



the signpost to the bathroom which was not at all clear. Whereas, for the Pracharat Bang Bai Mai Floating Market, there was no automated teller machine. As a result, the cash circulation, the exchange of goods, and the money distribution in spending to buy the products, generally takes much more time. The study on the promotion and development of an efficient and effective operational model of floating markets in Surat Thani, uncovered that previously all 50 sample stores in floating markets in Surat Thani, were divided into 25 stores in Pracharat Bang Bai Mai Floating Market and 25 stores in Ban Don Floating Market. This allowed for planning by qualitative forecasting methods, using experience and weather conditions, in the production and sales, resulting in the stock of raw materials unfit to the needs of customers not being present.

Once the operation model of the sample shop was developed by using the amount of sales in the past to forecast the needs of customers in the future, thus quantitative forecasting, it was found that the stock of raw materials from 22 sample stores in Pracharat Bang Bai Mai Floating Market and the 14 sample stores in Ban Don Floating Market fit the needs of customers during weekdays. While, 3 sample stores in Pracharat Bang Bai Mai Floating Market and 11 sample stores in Ban Don Floating Market had raw materials unfit for the needs of customers during weekdays, causing the products not to be sold. This is consistent with the research of Manat Meepong, *Tourists' satisfaction in Pattaya floating market, Bang Lamung, Chonburi*. It found that most of the tourists were 193 Asians, representing 46 percent, 269 females, representing 64 percent, aged 36-50 years, 204 people, representing 48.6 percent, had an average monthly income 30,001-55,000 baht, 231 people, representing 55 percent, mostly traveled by group tour of 188 people, representing 44.8 percent, traveled with families, 144 people, representing 34.3 percent, known the tourist attractions from the travel documentary, 89 people, representing 21.2%, liked to travel for leisure, 1424 people, representing 55.7%. This is also in line with the study of Pitchaya Nitikarn, *The use of social media for online marketing of Pattaya floating market*. This study found that in particular, watching video clips of a market has increased the most, followed by page likes and follows. Nonetheless, posting and reaching has decreased due to fewer advertising purchases. Tourists who check in at the official page of the market were mostly female, aged 25-34 years, 262 people were a male, aged 25-34 years, a total of 154 people.

The most used check-in date was Wednesday, Thursday, and Friday. The activities on Facebook pages of tourists rarely get attention because there were still only a few page followers. However, when promoted at the area where there were activities of the floating market organized and publicized to Thai tourists about activities organized by giving a complimentary gift card or souvenir, some tourists were interested to participate in activities but still not that many. The average amount of participants per activity was about 10-30 people only. This study corresponds to the research of Watunyu Choopak and Wissawa Aunyawong, *Tourism logistics and supply chain management: A Case study of Lam Phaya floating market, Bang Len district, Nakhon Pathom province*. It found that Lam Phaya Floating Market first opened for service on Sunday, September 5, 1999. At the present time, there are more than 300 stores. In addition, Lam Phaya Floating Market had a favorable environment for ecotourism, including the product prices in the market that were cheaper than elsewhere. Most importantly, the government also supported Thai tourism to promote and create opportunities for farmers to increase their incomes as well.

However, the research also found that Lam Phaya Floating Market should be developed in terms of store management systems in the market and in its facilities, such as walking routes and parking spaces that are demarcated, buses with only one line, road signs, and roads connecting to the market to allow for the tourism development in Lam Phaya Floating Market. This study likewise supports the research of Nida Buangam et al., *Tourism Management, Lam Phaya Floating Market, Bang Len District, Nakhon Pathom Province*. The management of the floating market tourism found that tourists were very satisfied with the Lam Phaya floating



market because the market retained the conditions of an ancient market and had a natural environment, fresh air, and many types of products.

The study proposed some guidelines for managing Lam Phaya Floating Market at the policy level that the market should have a clear management style. The study furthermore sustains the research of Jariyawat Lohaphoontrakul, *The development and solution of community problems by managing tourist attractions by community: a case study of Bang Nam Phueng Floating Market, Phra Pradaeng District, Samut Prakan Province*. It found that the managerial process to be an effective ecotourism area so as to strengthen the community in developing tourism destinations sustainably, including tourist areas, requires good management, activities, good process, and community participation. This study similarly upholds the research of Somkiat Plodnui, *Guidelines for development of tourism logistics and supply chain management: A case study of Amphawa Floating Market, Samut Songkhram Province*, by using the SCOR Model. It found that Apphawa Floating Market should improve the parking service fee rate, the safety of tourists' properties, the advertising media management, and tourist services.

This correspondingly confirmed the research of Maneewan Piwnim et al., *Tourism Development and Impact project: a case study of floating market community*. It found that the floating market tourism management still had large potential because it was a unique activity, unlike others. It was a tourists' favorite for both Thais and foreigners. This study also affirmed the research of Punnawit Thongsuk, *The Cultural Center of the Khlong Roi Sai area*. This study found that the design of the Khlong Roi Sai Community Cultural Center was a unique project. The use of materials and architecture suitable for the area, such as using bamboo as a roof structure was unique. The orientation of the building took into account the characteristics of a motor car and the Phanom Phra boat to support moving and assembling the car and the Phanom Phra boat during the exhibition. The arrangement of the permanent exhibition, moreover, was a sequence of telling the story about important resources in the community until reaching the story of the car and Phanom Phra boat.

The passage in the project was a walk in the sequence until returning to the reception hall and arranging the accommodation for tourists in the area adjacent to the coconut plantation and along the canal line. This was to allow access to community lectures and increase privacy in leisure, including the creation of boat travel programs to various important community resources in order to promote incomes for the Bang Bai Mai communities. The findings were consistent with the research of Anchalee Hiranphaet, *Supply Chain Management Factors Affecting Tourists' Satisfaction Towards Thung Bua Daeng Floating Market, in Bang Len District, Nakhon Pathom Province, Thailand*,

The research found that tourists' satisfactions towards the Thung Bua Daeng floating market are as follows: 1) boating activity and taking pictures with drones, received the satisfaction at a highest level (mean of 4.20), 2) foods and beverages made from natural ingredients, received the satisfaction at a high level (mean of 3.94), 3) agricultural products sold locally, had a satisfaction at a moderate level (mean of 3.05), and 4) access to the location, received a high level of satisfaction (mean of 4.06).

Considering the factors affecting supply chain management of Thung Bua Daeng floating market, these were sorted in priority from the most to the least as follows: 1) Planning, 2) Management, 3) Supply chain management from upstream to downstream, 4) Network construction, 5) Local wisdom, and 6) Obtaining operational support from government agencies from upstream to downstream. That is to say, the most important factor that creates success in supply chain management of Thung Bua Daeng floating market is planning.



The executives things plan step by step by starting from renovating the place, creating the identity, creating more awareness, holding different tourist activities, providing complete facilities, supporting local wisdom products, and generating income for nearby farmers. Other factors, moreover, are considered as important elements in supply chain management. This corresponds to the research of Tommanee Sooksai. The push-pull factors and behaviors of tourists to Tongchom Market, Mae La Noi District, Mae Hong Son Province, Thailand are important. The results found that the tourist behavior in choosing a tourist destination has the highest relationship with personal characteristics, specifically age, and this was followed by one's occupation.

From an overall perspective, the respondents gave importance to push factors at a high level, but mostly focused on their escapism and relaxation needs, followed by their desire to see and learn new things in an exotic destination. Overall, the respondents gave importance to pull factors at a high level, by mostly focusing on the personal and location safety features followed by the convenience image of the place. The respondents also gave importance to the marketing factors at the highest level of response, by mostly focusing on the identity of the tourist attractions presented to the tourists, which was followed by the affordability, disposable income and the price factor.

The results showed an understanding of internal needs, push-pull factors from tourist attractions and the marketing mix of Tongchom market tourism, so that entrepreneurs may beneficially apply these results to serve Thai consumers based on internal needs and the unique characteristics of Tongchom market as a tourist attraction. In addition, it is consistent with the four-year local development plan (2018 - 2021) of Surat Thani Provincial Administrative Organization, which identified that the nature of the water source in Surat Thani, with a total of 14 small river basins is critically important. Each basin has many rivers flowing into to the Gulf of Thailand. Rivers in Surat Thani intersect the peninsula flowing into the eastern sea. In the past, the river network merged and also with the river coastal city that has the important hydrological characteristics of Surat Thani, namely the Tapee River and Phum Duang River, the main arteries of the Surat Thani people.

References

- Bua Ngam, N. (2003). Study of Lampaya Floating Market. Nakhon Pathom. Nakhon Pathom Rajabhat University.
- Beamon, B. M. (1999). Measuring supply chain performance, *Journal of Operations & Production Management*, 19.
- Choopak, W. (2019). The Management of Supply Chain and Tourism Service of Lampaya Floating Market, Banglen District, Nakhon Pathom Province, *Journal of Research and development, Suan Sunandha Rajabhat University*. 11(1) 126-131
- Hiranphaet, A. (2019). Supply Chain Management Factors Affecting Tourists' Satisfaction Towards Thung Bua Daeng Floating Market, in Bang Len District, Nakhon Pathom Province, Thailand. *African Journal of Hospitality, Tourism and Leisure*, 8(4).
- Lohapoontrakul, Ch. (2008). Development and problem solving of a community by community based tourism management : A case study of Bangnamphung Floating Market, Phrapadaeng District, Samut Prakan Province. Huachiew Chalermprakiet University.



Meepong, M. (2017). Tourists' satisfaction in Pattaya floating market, Bang Lamung, Chonburi, Office of Cooperative Sripatum University Chonburi Campus, Thailand.

Nicolaidis, P.A. (2015). Tourism Stakeholder Theory in practice: instrumental business grounds, fundamental normative demands or a descriptive application?. *African Journal of Hospitality, Tourism and Leisure*, 4(2).

Nitikarn, N. (2017). The use of social media for online marketing of Pattaya floating market, Office of Cooperative Sripatum University Chonburi Campus, Thailand.

Palevich, F.R., (1999). Supply chain management, *Hospital Material Management Quarterly*, 20(3).

Pimonratanaka, P. & Ayasanond, C. (2018). The Supply Chain Management of Pomleo Production Processes and Tourism Sustainability in Nakhon Chaisri, Nakhon Pathom Province, Thailand. *African Journal of Hospitality, Tourism and Leisure*, 7(5).

Phiw Nim, M. (2003). The development and impact of floating market community. Bangkok. The Thailand Research Fund.

Sooksai, T. (2019). Push-pull factors and behaviors of tourists to Tongchom Marekt, Mae La Noi District, Mae Hong Son Province, Thailand. *African Journal of Hospitality, Tourism and Leisure*, 8(4)

Surat Thani Provincial Administrative Organization. (2018 - 2021). The four-year local development plan, Surat Thani, Thailand.

Stock, J. & R. Lambert, D.M. (2001). Strategic Logistics Management, 4th edition, McGraw-Hill

Thongsuk, P. (2015). the Cultural Center of the Khlong Roi Sai area., Architectural Design, Sripatum University, BKK, Thailand.

Vorasiha, E. (2018). The travelling route for gastronomic tourism via salt in western region of Thailand. *African Journal of Hospitality, Tourism and Leisure*, 7(3).