

การวิเคราะห์ระบบตลาดน้ำในประเทศไทยที่ยั่งยืน

Analyzing the Floating Market System in Thailand for Sustainability

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Abstract

Humans and water share a close relationship in Thailand. Before modernization, Thailand had many canals, a developed water traffic system, and many floating markets. These markets functioned as community spaces for the inhabitants. Moreover, environmental sustainability had been reached and the system seemed important to the culture. In this work, the remaining floating markets in and around Bangkok are surveyed and then compared. The results are as follows.

Bangkok has 28 floating markets, as of 2016. These markets can be divided into three types based on their “target customers.” Some markets used a temple site because temples function as community spaces for the local inhabitants; others are only meant for sightseeing and do not function as community spaces. Based on their contribution to the “local economy,” these markets can be divided into three types. The type of market differed according to location. The markets where anything is sold, however, are not useful to the local economy. The floating markets can be divided into four types based on their “space composition.” These markets are cool spaces, a characteristic of water spaces. Based on their “waterway network,” these markets can be divided into three types. Markets at closed sites are not connected to other places because they are only meant for tourists.

Consequently, “target customers,” “local economy,” “space composition,” and “waterway network” are determined as necessary factors in considering a sustainable floating market system in the present and future. This study contributes to adopting a sustainable development concept of a floating market in attracting policymakers and local people to draw tourist appeal.

Keywords

Floating Market

Sustainable System

Community Spaces

Local Economics

Space Composition

Canal Network

บทคัดย่อ

มนุษย์ และ น้ำ มีความสัมพันธ์กันอย่างใกล้ชิดของสังคมไทย ก่อนยุคความทันสมัยเข้าสู่สังคมไทยใช้คลองในการดำเนินชีวิตประจำวัน เช่น เพื่อการเดินทาง การเกษตรกรรม และเป็นสถานที่แลกเปลี่ยนสินค้า ตลาดน้ำ เป็นต้น ตลาดน้ำ ทำหน้าที่เป็นเสมือนพื้นที่ของชุมชนที่ผู้อยู่อาศัยมาใช้พื้นที่ร่วมกัน ดังนั้น การศึกษานี้ได้เห็นความสำคัญของตลาดน้ำที่ยังคงเหลืออยู่รอบกรุงเทพมหานครและจึงได้นำมาศึกษาเปรียบเทียบรูปแบบ และการจัดวางองค์ประกอบของตลาดน้ำกับบริบทแต่ละพื้นที่ จากการสำรวจจำนวนตลาดน้ำ 28 แห่ง ได้พบว่า ตลาดน้ำ สามารถจัดแบ่งได้ 3 ประเภทตามลักษณะ “เป้าหมายลูกค้า” ได้แก่ บริเวณวัด เพราะว่าวัดมีบทบาทสำคัญต่อชุมชน และมีพื้นที่ที่เพียงพอสำหรับคนในท้องถิ่น ตลาดน้ำประเภทที่ 2 สำหรับเป็นแหล่งเที่ยวชมวัฒนธรรมของชุมชน และประเภทที่ 3 ไม่ได้ทำหน้าที่สำหรับบทบาทของชุมชนแต่ทำหน้าที่เป็นแหล่งกระจายสินค้าเศรษฐกิจของท้องถิ่น รูปแบบของตลาดจึงมีความแตกต่างกันตามตำแหน่งที่ตั้ง และการขายสินค้าไม่ได้เป็นประโยชน์สำหรับเศรษฐกิจท้องถิ่น ตลาดน้ำยังมีการจัดแบ่ง ออกเป็น 4 ประเภทตามการจัดวางองค์ประกอบ และกิจกรรมการใช้งาน ในการศึกษาได้พบว่า การใช้งานของพื้นที่สร้างความผ่อนคลาย ลักษณะของพื้นที่น้ำยังสามารถเป็นเครือข่ายทางน้ำ ตลาดน้ำนี้ยังได้แบ่ง 3 ประเภท ตลาดที่มีพื้นที่ปิดไม่ได้ติดต่อกับพื้นที่อื่น ๆ เพื่อใช้สำหรับนักท่องเที่ยว ในการศึกษาได้พบว่า “เป้าหมายลูกค้า” “เศรษฐกิจท้องถิ่น” “การจัดวางองค์ประกอบ” และ “เครือข่ายทางน้ำ” เป็นปัจจัยที่สำคัญที่จะต้องนำมาพิจารณาในระบบของตลาดน้ำให้มีความยั่งยืนทั้งในปัจจุบันและในอนาคต การศึกษานี้ยังได้ช่วยเสนอแนวคิดการพัฒนาตลาดน้ำที่ยั่งยืนในเชิงนโยบายให้ดึงดูดนักท่องเที่ยวอีกด้วย

คำสำคัญ

ตลาดน้ำ

ระบบอย่างยั่งยืน

พื้นที่ชุมชน

เศรษฐกิจท้องถิ่น

การจัดวางองค์ประกอบในพื้นที่

เครือข่ายคลอง

1. Introduction

Humans and water share a close relationship in Asia, particularly in Thailand. In the past, the Kingdom had many canals, a developed water traffic system, and a unique water culture developed by adapting to the country's environmental typology. The inhabitants exploited nature and depended on waterways for their agricultural products and commercial activities; at times, they controlled nature for comfort in their daily activities. They developed environment-friendly livelihoods. Environmental sustainability had been reached. In addition, such markets were community spaces for the inhabitants. The system seemed important to the culture. However, most floating markets disappeared after modernization. Nonetheless, Thailand continues to boast many floating markets (Figure 1). By the way, "Floating market" is defined in this work as a place where merchants sell articles from boats in this work.

A number of them were recently revived or developed because the Thai government realized that floating markets are viable sightseeing places for tourists. Such markets are an important example of traditional culture in Thailand. However, the new markets may not always succeed in representing Thai culture. Although few studies have examined floating markets, there seem to be none that have investigated and compared all floating markets in and around Bangkok. Therefore, this study aims to consider what can enhance these markets and thus contribute to future city planning.

The Bangkok Metropolitan Authority (BMA) adopted a policy for promoting local economies and tourism through the floating market concept in each district. Examples include Taling Chan Floating Market, Bang Laung, Bangkokpi, Phadung Krung Kasem, and Kwan Riam. The current BMA governor, stated, "Challenge the local people to cope with changing environments." BMA implemented six policies that stimulate opportunity for all in the metropolitan: opportunity for learning and for livelihood from promoting the floating market concept.



Figure 1. Floating market (Wat Saphan)

2. Objectives of the Study

We conducted our study in the following manner. First, we surveyed floating markets in Bangkok and around the city within a 100km radius. We then compared the markets, and considered and understood the key factors "target customers," "local economy," "space composition," and "waterway network." Finally, we analyzed the design of these floating markets and the method of their revival.

3. Methods of Investigation

This study relied on first-hand information gleaned through practical observation. One researcher has more than 50 years of experience in Thailand and another researcher stayed for around four months in the study area to conduct close observation of the floating markets. Prior to our observation, we referred to available materials on existing floating markets, including guidebooks, websites, and other theses. We then plotted the markets on a map. Next, we visited these markets to investigate. How many people visit the market? Are they tourists or local inhabitants? What do these markets sell? We also investigated the markets' space composition, waterway network, schedule of shops, and other details. We also took pictures. The investigation period was from September to December 2015.

4. Literature Review

Topography and cultural history have a close link with floating markets and settlement in Bangkok as well as in Thailand. Markets have been involved in the daily life of the Thai in every era. It was a community center where people came to not only buy food and other articles but also meet friends, share news, and engage in other social activities; each market had its own unique identity and charming characteristics (Buasorn, 2010). Presently, floating markets in Bangkok and its vicinity in the Thai Central Plains are usually packed, as they are tourism products that offer visitors the opportunity to experience the local ways of life as in the past (Batra, 2014).

Denpaiboon (2001) mentioned that Thai settlements were based on a self-reliant concept that was composed of five aspects: local knowledge of architectural design, compatibility between the house and the environment, economic basic needs from agriculture, social aspects of having a strong sense of community with cultural aspects, and aquatic cultural habitation. Waterfront settlement areas were near the gardens, and farmers needed to bring their agricultural products to the markets, which were connected with rivers or canals or near the temple; the floating markets fulfilled individual and community needs for goods exchange and overall socio-economic satisfaction.

Public spaces in urban settings are enigmatic: they are the result of central planning, through the creation of central plazas, malls, or parks, but the vast majority of activities that happen in such spaces are not necessarily proscribed by their construction (Fleisher, N.D.). Public spaces and floating markets are another important factor where many would argue that vending in public places, especially of foods, is traditional in Southeast Asia and deeply rooted in the local culture. Most scholars argue that a turning point in the region, including and especially in Thailand, was the arrival of migrants from China, particularly in the 19th century, which was concomitant with the

growth in urbanization (Yasmeen & Nirathron, 2014).

On the other hand, the study focusing on non-motorized transportation, both walking and cycling, is important. The infrastructure network should be safety and efficiency like a canal because it is common to in a point of space for human being (Waralak, 2016, pp. 61-73). In this way, some studies about a house on water, public space, markets, infrastructure network are written. However, there are a few studies about floating market.

In this way, some studies about a house on the water and markets on the land are written. However, there are a few studies about floating market. The system of floating market is sustainable culture in Thailand. Therefore we surveyed and compared all floating markets in and around Bangkok. The key factors of consideration for these markets are “target customers,” “local economy,” “space composition,” and “waterway network.”

5. Result and Discussion

5.1 Main Features of Floating Market

Figure 2 shows the location of the floating markets, and Table 1 provides the main features of the floating markets as observed by the researchers according to a specifically structured checklist.

The field observation identified seven markets within Bangkok City, 8 outside but within the 50 km range, and 13 outside but within the 100 km range, for a total of 28 floating markets within the central region of Bangkok. Most of the floating markets are located in the western part of the city, close to the Chao Praya and Mae Klong rivers. Many are located in canal areas that have been inhabited for many generations.

As mentioned above, the main features of these floating markets are given in Table 1. This table illustrates “(1) Target customer,” “(2) Locality of the article,” “(3) Space composition,” and “(4) Water network.” Moreover, “Position of market,” “Address,” “Development year,” and “opening time of shop” are described. The data shed light on new and old floating

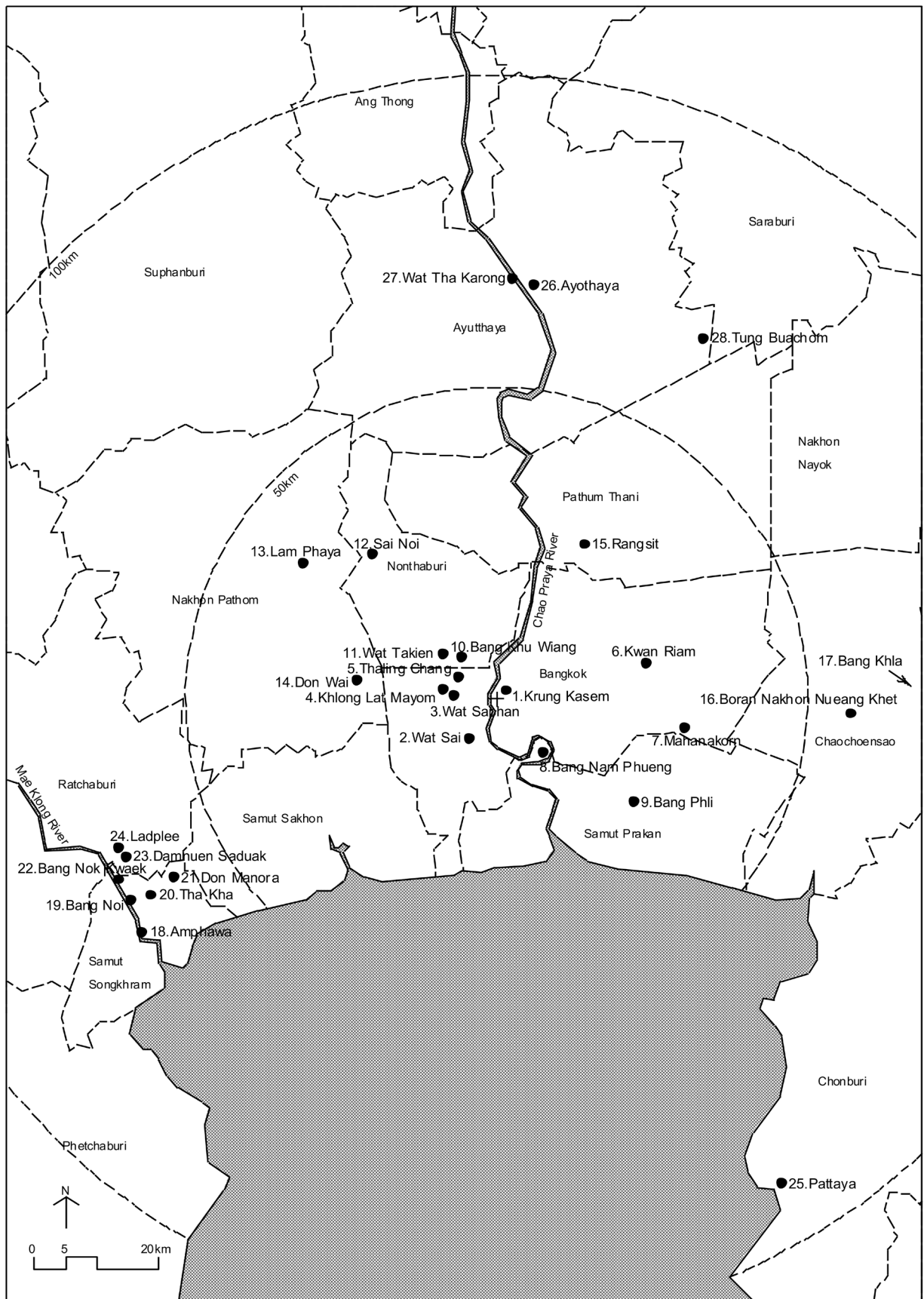


Figure 2. Location of floating markets

Table 1. Main features of the floating markets

No	NAME OF MARKET	(1)TARGET CUSTOMER			(2)LOCALITY OF ARTICLE			(3)SPACE COMPOSITION				(4)WATERWAY NETWORK			OTHERS					
		inhabitants	Thai tourist	foreign tourist	local	other village	other country	waterside walkway	floating deck	spot space	on the boat	temple	house	farm	POSITION OF MARKET	ADDRESS	DEVELOPMENT YEAR	OPENING TIME OF SHOP		
																		sat:Saturday sun:Sunday holi:Holiday every:Everyday		
1	Khlong Phadung Krungkasem	▲	●		▲	●			●						Canal (Krungkasem)	○		Phadung Krungkasem, Bangkok	2015	sat,sun 15:00-20:00
2	Wat Sai	○			○			○				○	○	○	Canal (Saanam Chai)	○		Ekkachai Road Bangkhontien Jomthong, Bangkok		sat,sun,holi 8:00-15:00
3	Wat Saphan	●			●				●			●	●	●	Canal (Bang Noi)	○		Taling Chan, Bangkok		everyday 7:00-14:00
4	Khlong Latmayom		●		●				●				●		Canal (Lat Ta Niao)	○		Bang Ramat, Khwaeng Bang Ramat, Khet Taling Chan, Bangkok	2004 revived	sat, sun, holi 9:00-15:00
5	Taling Chan	●	●	●	●			●				●	●		Canal (Chak Phra)	○		Bang Ramat Road Khwaeng Bang Ramat Khet Taling Chan, Bangkok	1999	sat,sun 8:00-17:00
6	Kwan Riam		○		○			○				○			Canal (Saen Saep)	○		Ramkamhang 187, Saerethai 60 Bangkok	2012	sat,sun 7:00–20:00
7	Mahanakorn (closed)		△		△	△		○				-	-	-	Canal (Lat Krabang)	○		Lat Krabang Road Road, Lat Krabang, Bangkok	2011 now closed	every 7:00-24:00
8	Bang Nam Phueng		○		○			○				○	○	○	Canal (Bang Nam Phung)		S	Soi Bua Phueng Phatthana Bang Kobua, Phra Pradaeng, Samut Prakan Province	2004	sat,sun,holi 7:00-16:00
9	Bang Phli	○	△		○	△		○				○	○	○	Canal (Samrong)		SE	1 Sukhaphiban 3 Bang Phli, Samut Prakan Province	1857	every 8:00-16:00
10	Bang Khu Wiang	○			○			○					○	○	Canal (Bang Khu Wiang)		NW	Bang Kruai, Nonthaburi Province		every 4:00-7:00
11	Wat Takien	△	○	△	○	△			○			○	○	○	Canal (Bang Khu Wiang)		NW	Bang Kruai District, Nonthaburi Province	2009	every 8:00-16:00
12	Sainoi	○			○			○				○	○	○	Canal (Phra Phimon)		NW	Sai Noi District, Nonthaburi Province		sat,sun,holi 8:00-15:00
13	Lam Phaya	●	●		●			●				○	○	○	River (Tha Chin)		NW	Lam Phaya, Bang Len District, Nakhon Pathom Province		sat, sun, holi 7:00-16:00
14	Don Wai	○			○			○				○	○	○	River (Tha Chin)		W	Sam Phran District, Nakhon Pathom Province	1910-1925	every 6:00-17:00
15	Rangsit	○	○		○			○				-	-	-	Canal (Rangsit Prayunsak)		N	Thanyaburi, Pathum Thani Province	2009	every 10:00-17:00
16	Boran Nakhon Nueang Khet	●			●			●				●	●	●	Canal (Nakhon Nueang Khet)		E	Chachoengsao Province	> 130 years ago	sat,sun,holi 8:00-16:00
17	Bang Khla	○	○		○			○					○	○	River (Bang Pakong)		E	Muang Chachoengsao, Chachoengsao Province		sat,sun,holi 8:00-16:00
18	Amphawa	●	●	●	●			●				●	●	●	Canal (Wat Chula)		SW	Amphawa, Samut Songkhram Province	1957	fri, sat,sun 15:00-21:00
19	Bang Noi	○	○	△	○			○				○	○	○	River (Mae Khlong)		SW	Bang Khonthi, Samut Songkhram Province	2009 revived	sat,sun,holi 8:00-16:00
20	Tha Kha	○	○	○	○				○				○	○	Canal (Ban Tai)		SW	Tha Kha Amphawa, Samut Songkhram Province	> 100 years ago	sat,sun,holi,waxing and waning Moon day 2,7,12th 6:00-12:00
21	Don Manora			○	△	○					○	○	○	○	Canal (Don Manora)		SW	Bang Khonthi, Samut Songkhram Province	> 50 years ago	waxing and waning Moon day 2,7,12th 6:00-12:00
22	Bang Nok Kwaek Old Market	○			○			○				○	○	○	River (Mae Khlong)		SW	Bang Khonthi, Samut Songkhram Province	> 150 years ago	sat,sun,holi 10:00-16:00
23	Dam Nouen Sadauk			●	▲	●	●				●	●	●	●	Canal (Ladplee)		SW	Dam Nouen Sadauk, Ratchaburi Province	1967	every 7:00-11:30
24	Ladplee	○			○			○				○	○	○	Canal (Khut Lat Ratchaburi)		SW	Ladplee, Ratchaburi Province		
25	Pattaya			●	▲	●		●				-	-	-	Pond		SE	Sukhumvit-Road, Pattaya Nongprue, Banglamung, Chonburi Province	2009	every 10:00-21:00
26	Ayothaya			●	▲	●		●				-	-	-	Pond		N	Phaling Muang, Ayutthaya Province	2010	every 10:00-17:30
27	Wat Thakarong	○			○			○				○	○	○	River (Chao Praya)		N	Ban Pom Phra Nakhon Si Ayutthaya Province		sat,sun,holi 8:00-evening
28	Tung Buachom		△	○	△	○		○				-	-	-	Pond		NE	Sanap Thup, Wang Noi District, Phra Nakhon Si Ayutthaya, Province	2013	every 10:00-0:00

NOTES: S=south of Bangkok N=north of Bangkok W=west of Bangkok E= east of Bangkok

○=main customer, main article (●=referring market) △=sub customer, sub article (▲=referring market)

markets. Markets 16, 20, 21, and 22 are old, whereas markets 5, 6, 7, 8, 15, 25, 26, and 28 are new. Market 4 location disappeared once in the past but was revived recently. Meanwhile, 16 markets are open only on weekends, and the rest operate every day. However, market 7 seems out of operation despite being a new one.

The rest of the discussion refers to the following 10 markets: Khlong Phadung Krungkasem (No. 1), Wat Saphan (No. 3), Khlong Latmayom (No. 4), Taling Chan (No. 5), Lam Phaya (No. 13), Boran Nakhon Nueang Khet (No. 16), Amphawa (No. 18), Dam Nouen Saduak (No. 23), Pattaya (No. 25), and Ayothaya (No. 26).

5.2 Target customers

This section discusses the target customers of the floating markets. Floating markets have originally been community spaces of the local inhabitants. At present, however, these markets have become tourist areas. Visitors come to the floating market for only the market’s publicity, to revel in nostalgia of cultural heritage; many visitors of this type come from neighboring settlements, which means that they are neighborhood inhabitants or tourists. Visitors’ activities at the market comprise an important element of this investigation. In addition, foreigners and Thai visitors differ in their purpose, although many tend to purchase tasty fresh foods and fruits and observe a traditional way of life that is nature friendly and helpful to the local economy. Hence, floating markets have three types of target customers: neighborhood inhabitants (Type A), various people (Type B), and foreign tourists (Type C) (Figure 3).

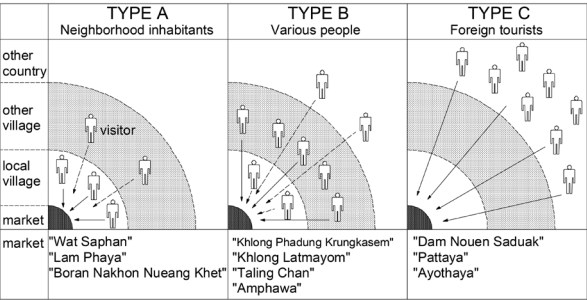


Figure 3. Target customers

(1) Type A: Neighborhood inhabitants

Wat Saphan (No. 3), Boran Nakhon Nueang Khet (No. 16), and Lam Phaya (No. 13) primarily receive this type of visitors (Figure 4), indicating that they are places where local inhabitants assemble. These markets do not have a guidebook designed for tourists. In addition, Thais who live far from these markets do not visit them. These floating markets exist only as public spaces for nearby inhabitants. Wat Saphan (No. 3) and Lam Phaya (No. 13) use the site of a temple, which functions as a community space for local inhabitants. Many people come here for a meal rather than for shopping. Meanwhile, Boran Nakhon Nueang Khet (No. 16) is an old market that has existed for more than 130 years. It is a good example of a floating market that is saving traditional culture.



Figure 4. Boran Nakhon Nueang Khet floating market

(2) Type B: Various people

Markets whose visitors fall under Type B are the ones where both tourists and inhabitants assemble; in this investigation, Amphawa (No. 18), Taling Chan (No. 5), Khlong Latmayom (No. 4), and Khlong Phadung Krungkasem (No. 1) are of this type (Figure 5). It indicates that they are neighborhood inhabitants or tourists. It is also important to determine what visitors do at the market. In addition, differences between foreigners and Thais need to be identified with respect to accessibility. Foreign tourists, as well as Thais, visit Taling Chan (No. 5) for the purpose of

enjoying a meal in the floating restaurants, and Khlong Latmayom (No. 4) for the stalls. In creating Khlong Phadung Krungkasem (No. 1), current prime minister, Mr. Prayut Chan-o-cha, also former Commander-in-Chief of the Royal Thai Army, emphasized that revitalizing the floating market in the Bangkok center can generate employment and income through the close relation of Thai culture. People might come to buy homemade handicraft and promote local agricultural products. Amphawa (No. 18) is located nearly 70 km away from the core area of Bangkok (Figure 5). Accessibility to this floating market is not easy, but it is nonetheless full of people. The crowds gather because of its larger area, availability of local homemade articles, traditional culture, and also a public space for inhabitants. Moreover, it is green and rich in an architectural landscape where a huge crowd of people can visit at day and at night.



Figure 5. Amphawa floating market

(3) Type C: Foreign tourists

Ayothaya (No. 26) and Pattaya (No. 25) were developed as markets where usually foreign tourists assemble (Figure 6). Thus, these markets are not community spaces for inhabitants. These two floating markets look beautiful, with modern architectural design decorated in “artificial” Thai culture style. Dam Nouen Saduak (No. 23) is an amusement park that has the architectural characteristics of Thai regional cultures, especially northern, southern, central, and north-eastern regions, in consideration of its previous inhabitants. However, they moved to other places,

and the market was renovated for sightseeing in 1967. In other words, it was previously a public space where many inhabitants and tourists assemble but is now a place only for foreign tourists.



Figure 6. Ayothaya floating market

The above discussion reveals the target customers of Bangkok’s floating markets: “Neighborhood inhabitants” (Type A), “Various people” (Type B), and “Foreign tourists” (Type C). Obviously, it is assumed that both Types A and B were the original customers of floating markets in Thailand; the markets with these types of customers can be deemed “original” floating markets. Meanwhile, markets that were developed targeting only foreign tourists are not “original” Thai floating markets, as they were created for commercial and entertainment purposes.

5.3 Local economy

This section discusses the local economic importance and role of floating markets in the livelihood of rural people in Thailand. Usually, the floating market is located on water (canal or river) because they have to carry articles through the waterway. The floating market has been part and parcel of the local inhabitants’ livelihoods. In other words, the floating the market is directly related to the local economy. The products sold in the market may be foods, household articles, or cottage industry products, as well as articles from manufacturing industries.

In analyzing the products available in the markets, the study found that the local economy of a floating market has three types: “Sell local articles” (Type A), although the field investigation revealed that local communities tend to have very few of their own homemade products to sell in the market, leading them to collect articles from other available sources, which are classified as “Sell articles made in some other village” (Type B) and “Sell anything” (Type C) (Figure 7).

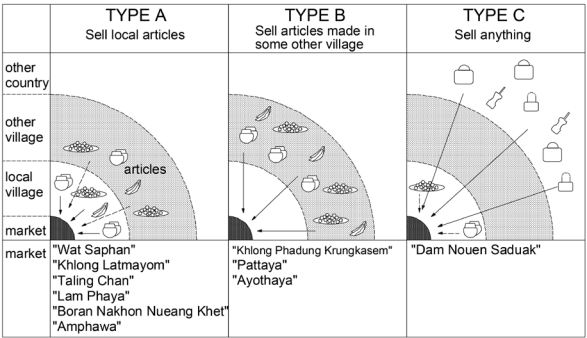


Figure 7. Economic system

(1) Type A: Sell local articles

Figure 8 shows the floating markets Taling Chan (No. 5), Wat Saphan (No. 3), Khlong Latmayom (No. 4), Lam Phaya (No. 13), Boran Nakhon Nueang Khet (No. 16), and Amphawa (No. 18). People gather in these markets to enjoy their lunch and buy local articles. These markets take seats on the weekend. They sell local products made or grown by local people. These markets thus contribute to and strengthen the self-sustaining local economy.



Figure 8. Lam Phaya floating market

(2) Type B: Sell articles made in some other village

In this type of floating market, articles sold are brought from other regions or provinces. Khlong Phadung Krungkasem (No. 1) is an experimental type of floating market (Figure 9). It is an interesting market where the variety of products is huge and articles come from villages and cities around Bangkok. Moreover, it offers high-quality fruits and vegetables at reasonable prices. Thai local products are also sold in Ayothaya (No. 26) and Pattaya (No. 26), although these markets were established targeting tourists only.



Figure 9. Khlong Phadung Krungkasem floating market

(3) Type C: Sell anything

Goods without relation to the local characteristics of the market community are sold at Dam Nouen Saduak (No. 23) market (Figure 10). In this market, the vendors are mostly non-locals. According to some visitors, such market type does not represent the traditional Thai floating market and lifestyle of Thai people. As such, tourist interest in such places is low. Shopkeepers in this market are solely business oriented without considering the environment and sustainability of the local culture. Nonetheless, there is still natural beauty to be admired, such as canal network, gardening, and water-based townscape.

Thus, the market types differ according to location. The concept of the floating market is in enhancing local production and enriching local culture. Therefore, if the market is selling articles that do not relate to the local water networks nor promote local production and culture, then it has nothing to do with the local economy.



Figure 10. Dam Nouen Saduak floating market

5.4 Space Composition

The space composition of floating markets is similar throughout the floating markets in Thailand. For example, many boats are shops that sell various articles, each having a walkway and seating arrangement. In these boats, tourists buy goods that locals sell. Other boats are for tourists' sightseeing. The form of the boats is similar, as well. However, the form of the market place may differ. The construction of a floating market considers the tourists' preferences and needs, as well as the comfort of the shopkeeper.

The study identified the elements of floating markets based on our investigation: the boat (merchant's boat or visitor's boat), shops, canal, merchants, visitors, and access. Figure 11 shows a plan and a section of a typical market of each type. The space composition of a floating market has four features: "Waterside walkway" (Type A), "Shop deck space" (Type B), "Spot area" (Type C), and "On the boat" (Type D). Many floating markets are either Types A or B. The characteristics of each type are described in the next section.

(1) Type A: Waterside walkway

This feature, seen in Figure 12, is common in Boran Nakhon Nueang Khet (No. 16), Amphawa (No. 18), Ayothaya (No. 26), and Pattaya (No. 25). These types of spaces were constructed to accommodate the many shops along the walkway of a waterside.

The waterside walkway is also seen in many boats whose shopkeepers sell food and other articles. The walkway enables the visitor to walk the space between the seller on a boat and the shops along a waterside. This composition feature is seen in the large markets as well. Such a feature can be considered as the most defining feature of the traditional type of floating market in Thailand. Ayothaya (No. 26) and Pattaya (No. 25) are not "floating" as they are fixed, not moving. In other words, the shopkeepers do not bring articles by boat from other places.

(2) Type B: Shop deck space

The second most common feature of a floating market is the shop's deck space. This feature, shown in Figure 13, is seen in Taling Chan (No. 5), Lam Phaya (No. 13), and Khlong Phadung Krungkasem (No. 1). This deck space is where most of the visitors take their meals. Shopkeepers sell food in their floating boats along the deck space. These places are small and tend to be full of visitors. In addition, this space is more comfortable because the natural wind blows from the surroundings. In relation to this, it should be mentioned that Khlong Phadung Krungkasem (No. 1) is also known as Talad Nam Nayok, as it was built in the public space along the banks of a canal where tent shops are established.

(3) Type C: Spot area

The next type is the market that has waterside spot areas, shown in Figure 14, with examples seen in Wat Saphan (No. 3) and Khlong Latmayom (No. 4). Spot areas are small spaces similar to floating decks. As on floating decks, these spot areas provide spaces for most visitors to eat. Boats selling food float along these spots that are filled with visitors.

(4) Type D: On the boat

The example for the last type of market is only Dam Nouen Saduak (No. 3) (Figure 15). Visitors get on a boat to buy articles or food, usually boats selling

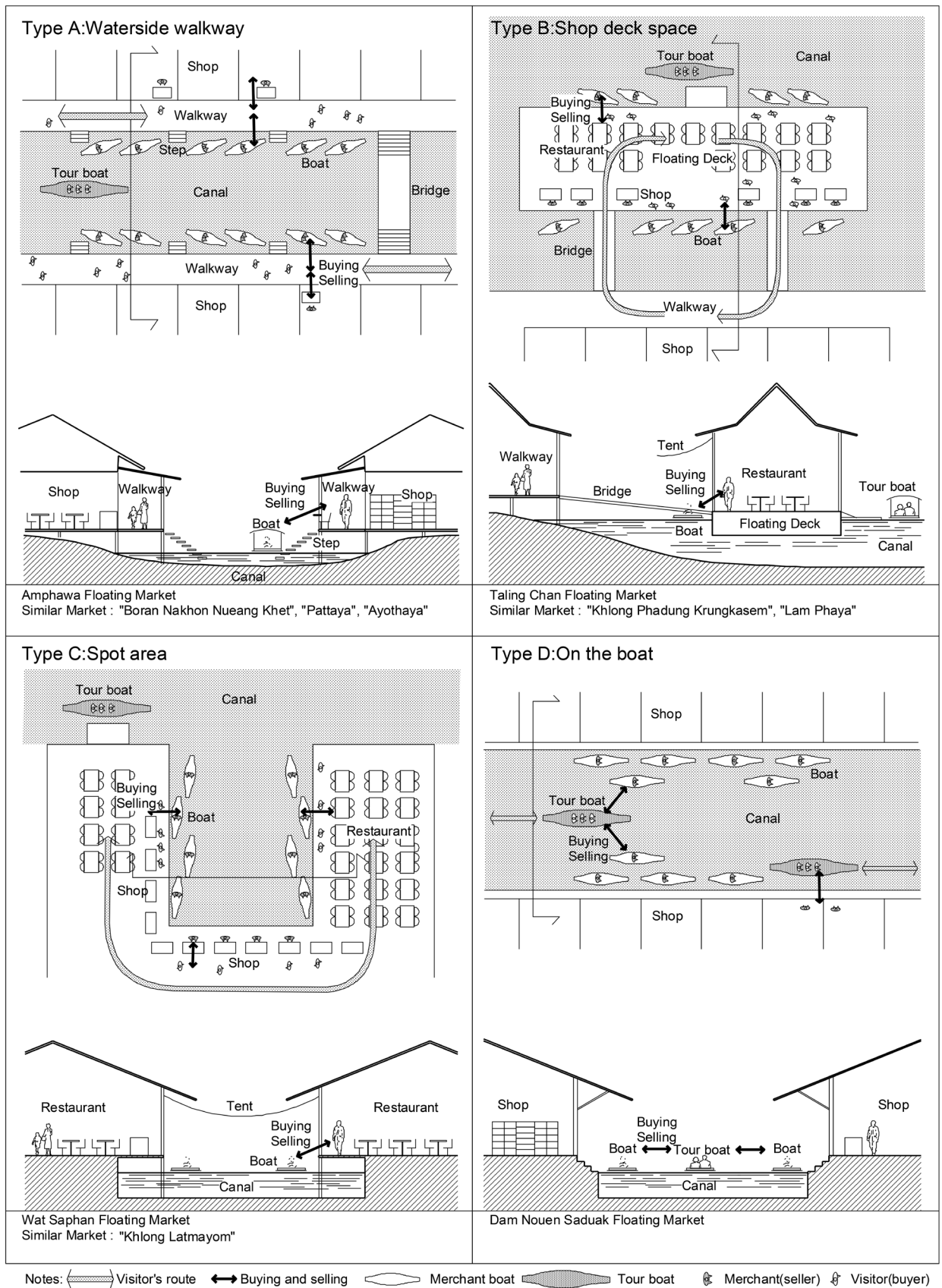


Figure 11. Space composition of floating market



Figure 12. Amphawa floating market



Figure 13. Taling Chan floating market



Figure 14. Wat Saphan floating market



Figure 15. Dam Nouen Saduak floating market

on a waterway or shops along the waterside. Visitors can experience a market with an exciting water townscape. In addition, their visit is pleasant because the boat moves, which brings a breeze. These boats move to houses in a village, coconut palm farms, and other markets.

In this way, there are four space composition types of floating markets in the study area, of which the waterside walkway type is considered the traditional feature. Many markets may have various space composition types, depending on the characteristics of the site, but the most important feature is the air space that allows visitors to enjoy pleasant temperatures on the water.

5.5 Waterway Network

This section discusses the waterway networks of floating markets. Floating markets exist on water because the local communities use such water for their daily life and agricultural livelihood, whereas tourists find the water townscape exciting to experience. The local economy depends on the three components of houses, farms, and temples. Community residents buy and sell articles at one place to another on weekends, according to the culture of Thai villages. The study identified the elements of the waterway networks under investigation: houses, boats, farms, temples, floating markets, and canals. The network systems are shown in Figure 16. In considering the waterway networks of a floating market, we identified three types: “Canal connecting the neighborhood temple, houses, and farms” (Type A), “Canal connecting to another village” (Type B), and “Closed site” (Type C). Many floating markets belong to Types A and B. The characteristics of each type are described in the next section.

(1) Type A: Canal connecting the neighborhood temple, houses, and farms

Markets under this type originated with consideration for the meandering of the canal or river. These canals or rivers connect floating markets. At

present, local municipalities have established infrastructure for easy access to these floating markets. The original types of waterway networks (Figure 17) were those that offered connection for houses and farms in a neighborhood. Amphawa (No. 18), Lam Phaya (No. 13), Boran Nakhon Nueang Khet (No. 16), and Dam Nouen Saduak (No. 23) are examples of markets operating in this type of network. Amphawa (No. 18) and Boran Nakhon Nueang Khet (No. 16) are floating markets that connected to the houses, farms, and temple of their respective village. Both markets are located along a canal network accessible to local residents and shop owners.

Dam Nouen Saduak (No. 23) is likewise connected to the houses of its village, a farm, and a temple. However, it is connected physically. In other words, the waterway has nothing to do with the circulation of articles in the market. As such, it is not considered as a real floating market. It has potential to become a better floating market if the locals adopt effective initiatives to improve the use of resources.



Figure 17. Market and temple connected by canal

(2) Type B: Canal connecting to another village

This type (Figure 18) connects the floating market to land and the canal, seen in Khlong Phadung Krungkasem (No. 1), Wat Saphan (No. 3), Khlong Latmayom (No. 4), and Taling Chan (No. 5).

Khlong Phadung Krungkasem (No. 1) is a new model of a floating market in Thai culture that borrows concepts from traditional Thai floating markets. Local authorities approved this model and have taken initiatives to establish this type of floating market in various places around the country. Early in 2015, Khlong Phadung Krungkasem (No. 1) was used by the current Prime Minister to promote establishing this model of market, with the intention of boosting local economies. In this market that is located in an urban canal, people sell local articles and foods produced in another village. Therefore, its visitors are local people and tourists. This type of floating market modernizes the traditional Thai floating market, offering conveniences absent from traditional types. It is a simple and uncomplicated model: villagers can easily bring their articles to sell at a floating market that is accessible to city dwellers and tourists. The advantages of this type of floating market are as follows. Urban dwellers get easy access to fresh vegetables and fruits, whereas farmers can sell their products directly to consumers, thereby ensuring economic prosperity for the farmers and encouraging them to grow more products. This type of market creates job opportunities as well. Low-income people can seek opportunities in producing local food to sell or prepare and cook at the market, thereby enhancing their income-generating activities.

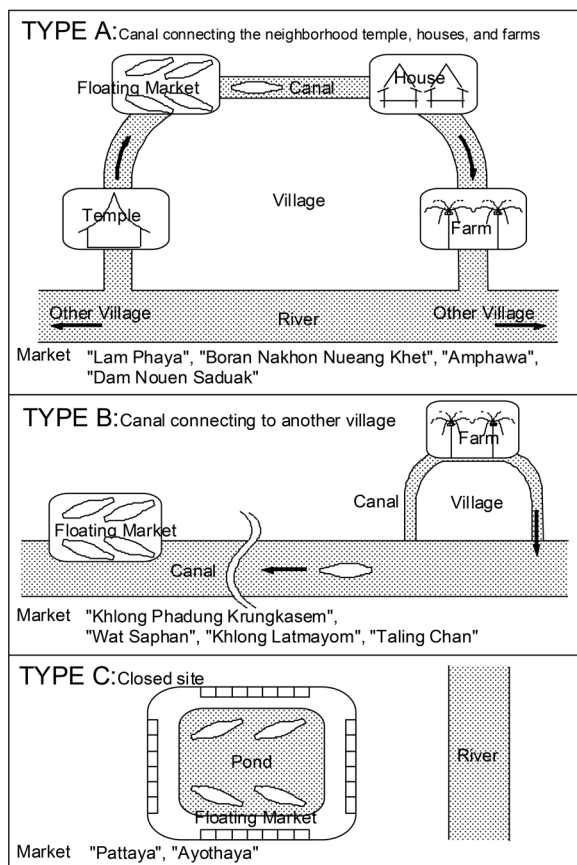


Figure 16. Waterway network



Figure 18. Khlong Krungkasem floating market

Wat Saphan (No. 3), Khlong Latmayom (No. 4), and Taling Chan (No. 5) are examples of different markets connected by a canal. Visitors can thus experience two markets through this market network. Khlong Latmayom (No. 4) disappeared once but was later revived in 2004 through the initiative of the local municipality. It is currently popular among locals, who continue to preserve the floating market concept as part of their natural environment while enjoying the nostalgia of their own culture.

(3) Type C: Closed site

The last type is a market located at a closed site, such as Ayothaya (No. 26) and Pattaya (No. 25). These markets are developed primarily for foreign tourists, and may seem more like amusement parks. The waterway that such markets are based on is not a canal or river but a pond, and thus is not connected to any nearby site. The boats of such markets are not actual floating market boats. Nonetheless, they help present Thai culture to foreigners.

A real floating market is not a closed site but is connected to other places (houses, farms, temples, etc.). Merchants bring articles produced at other place to the market, where the visitors come to shop. Therefore, floating markets are usually located on a canal or river. The case of Khlong Krungkasem (No. 1) located in a downtown area is notable. If markets are to be developed for tourists, old markets may be revived in a particular method. We believe that markets that can enlighten tourists about Thai culture are ideal markets.

6. Conclusion

In the past, humans and water share a close relationship in Thailand. Before modernization, Thailand had many canals, a developed water traffic system, and many floating markets. A composition of arrangement for a space connectivity is a guide to create Thai appearance which reflects the Eastern spirit such as the light which is relative to the priority of space. It shows the relationship and co-existence in a way of living with the natural environment and space linked by a common space connectivity. (Prasertsuk, 2015, p. 42) Therefore, the composition of arrangement for the floating market is based on the natural environment and a common space connectivity. These markets functioned as community spaces for the inhabitants. Moreover, environmental sustainability had been reached. The system seemed important to the culture. Therefore, we surveyed the remaining floating markets in and around Bangkok and then compared. Then we analyzed the floating market system for sustainability. The results are as follows.

We surveyed 28 floating markets in and around Bangkok, and then compared these markets with respect to four important factors: “target customers,” “local economy,” “space composition,” and “waterway network.” Floating markets have three types of target customers: neighborhood inhabitants, various people, and foreign tourists. Some markets use a temple site, because a temple functions as a community space for local inhabitants. Meanwhile, some markets are only meant for sightseeing and are not community spaces. Considering their contribution to the local economy, floating markets can be divided into three types: those that sell local articles, those that sell articles made in other villages, and those that sell anything. The market type differs according to location. However, markets that sell anything do not contribute to the local economy. Based on space composition, floating markets can be divided into four types: those with waterside walkways, floating deck

spaces, spot areas, and on the boat. These spaces are characterized by the cool breeze of waterscapes. Based on the waterway network, the markets can be divided into three types: those in canals connected to neighborhood houses and farms, in waterways connected to other villages, and closed sites. The closed-site type markets do not connect to other places, and such markets are developed only for tourists.

Thus, this study sheds light on how floating markets have become a public place for tourists as well as inhabitants. However, “target customers,” “local economy,” “space composition,” and “waterway network” are important factors of consideration for developing a sustainable floating market system. If not considered, then a floating market will lose its meaning. We hope these survey results will contribute to the future development of floating markets.

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