

## Structure, Building, and Conservation of Kolek Boats as Malay Traditional Boats <Special Theme : Material Cultural Studies on Boats and Fishing Tools Based on the Museum Collections and Fieldwork>

メタデータ	言語: eng 出版者: 公開日: 2022-12-07 キーワード (Ja): キーワード (En): 作成者: モハメド・ロハイザット, アブドゥル・ワハブ メールアドレス: 所属:
URL	<a href="https://doi.org/10.15021/00009961">https://doi.org/10.15021/00009961</a>

## Structure, Building, and Conservation of *Kolek* Boats as Malay Traditional Boats

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マレーの伝統漁船コレックの構造・建造・保存

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This paper presents a study of *Kolek* boats: traditional boats used by fishermen on the East Coast of Peninsular Malaysia. Recordings of the structure and design of the boats are important for the cultural heritage and maritime history of Southeast Asia. An important characteristic of this boat is its decorative art, with various attractive colors. After conducting this study through direct observation and qualitative interviews with boat builders at the field site, this report was composed to record the traditional boatbuilding methods, with investigation of the names of the major parts of this boat. The results of this study revealed that these boats were built traditionally and that the work was done on a hereditary basis. The study showed that *Kolek* boats are important objects for the cultural history of the eastern coast of Malaysia, especially for that of Kelantan, and not only as tools for fishing but for the decorations of the boats, which are loaded with Malay art and culture. In-depth research must be continued to elucidate the values and philosophies underlying the art and culture from the production of these heritage values. This study also investigated the *Kolek* boat collection at the National Museum of Ethnology, Japan, with presentation of some discussion of its significance and characteristics.

本稿はタイ南部およびマレーシア半島東海岸の漁民が使用するコレック船に関する研究成果を論じる。コレック船は、マレーシア半島東海岸で現在も使用されている伝統的な船の1つである。本船の構造とデザインに関する民族誌的記録は、東南アジアの文化遺産研究としても重要である。またコレック船の重

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**Key Words** : boatbuilding, *Kolek* boat, Malaysia Peninsula, Southern Thailand, traditional art and culture

キーワード : 造船, コレック船, マレーシア半島, タイ南部, 伝統芸術文化

要な特徴は、多様かつ魅力的な色を用いた装飾芸術にある。本稿では、船大工に対する参与観察及び定性的インタビューに基づき、伝統的な船製造技術と共に、コレック船の主要部品の名称に関する民族誌的資料について整理した。その結果、コレック船の伝統的な製造が現代にいたるまで継承されてきた点が確認され、マレーシア半島東海岸の中でもとくにクランタン州における伝統的漁船として重要な物質文化の1つである点が明らかとなった。またコレック船が単なる漁具の枠組みを超え、その本体装飾がマレーシアの芸術文化を具現している点も重要である。さらに本稿ではコレック船のもつ文化的背景に依拠しつつ、国立民族学博物館に所蔵されるコレック船の特徴やその意義についての検証も行った。

1 Introduction	3.4 Boat Decorations
2 Study of <i>Kolek</i> in Kelantan and Southern Thailand	4 <i>Kolek</i> Boat in National Museum of Ethnology in Japan
3 Description of <i>Kolek</i> Boat	5 <i>Kolek</i> Boat Building Process
3.1 Name of Boat	5.1 Boat Building Process
3.2 Shape and Dimensions	5.2 Decoration Process
3.3 <i>Kolek</i> Boat Structure	6 Discussion and Conclusion

## 1 Introduction

On the eastern coast of Peninsular Malaysia, bordering the South China Sea in states such as Kelantan, Terengganu, and Pahang states boats used by fishermen are the most important transportation tools and material cultural items, reflecting those communities as they secured fisheries for their livelihood and survival. Currently, most fishermen use modern fiber reinforced plastic (FRP) boats with engines because of their cheaper maintenance compared to that necessary for conventional wooden boats. Boats of various types have been produced by the community on the eastern coast of Peninsular Malaysia. They have come to hold important heritage values in the maritime history of Malaysia. These boats are produced with various shapes and ornaments. For that reason, they warrant an earnest study effort. Furthermore, one collection of these traditional fishing boats is maintained at the National Museum of Ethnology in Japan (Minpaku) along with several other decorative boat components stored there.

Documentation of conventional Malay boats has been conducted by earlier researchers. Warrington Smyth (1906) described and illustrated the types of boats of the Malay Peninsula. Raymond Firth recorded nine types of conventional boats on the East Coast (Firth 1946). Eric Alfred and Mohamed Mokhtar (1997) reported

boats of 12 types that are used on the East Coast. In addition, Smyth (1906), Carl Gibson-Hill (1954), Ismail Ahmad (1999) documented this type of boat on the East Coast. These records are important to identify the names and designs of the boats plying waters along the East Coast. The *Kolek* boat, the main emphasis of this study, is still in use today. The salient unique points of this boat are its unique decoration and design and great aesthetic value.

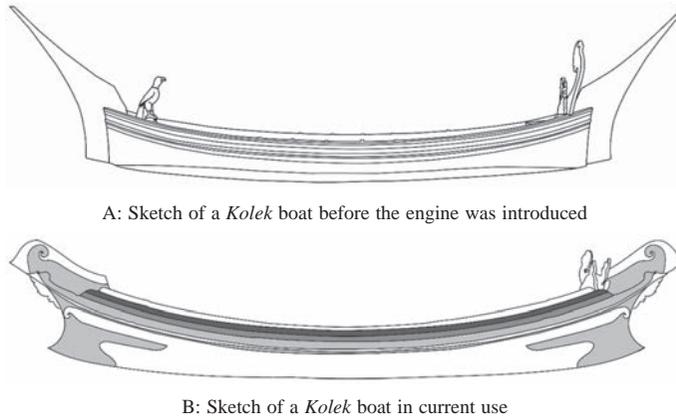
Based on these reports, the author conducted a comparative study of boat building, which revealed that traditional boats of 19 types are still used by the Malay community on the East Coast of Peninsular Malaysia. Nevertheless, not all of these boats are identifiable. Some of the boats can be found in museums today. The boat types have been identified as presented below (Table 1).

**Table 1** Boats found along the East Coast of Peninsular Malaysia

Boat Type Name	Dimension (m)		Small Boat Load Crew	Distance Capability
	Length	Width		
1. <i>Jalur</i> (logboat)	2.5–8.8	0.5–1.3	2–8	Inland and coastal waters
2. <i>Jokong</i>	2.8–4.5	0.3–0.8	2–4	Inland and coastal waters
3. <i>Kulit Kayu</i> (bark boat)	5.1–5.7	0.83–0.9	1–2	Inland waters
4. <i>Mat Rian</i>	5.6	1.46	4–8	Inland and coastal waters
5. <i>Tembeling</i>	6.0–18.0	0.4–0.6	12	River
6. <i>Setak</i>	9.0	1.8	6–7	Inland and coastal waters
7. <i>Kajangan</i>	8.72	1.24	6–7	Inland waters
8. <i>Haluan Katup</i>	5.6	1.48	2–4	Inland and coastal waters
9. <i>Daud</i>	12.0–18.0	2.2	4–6	Inland and coastal waters
10. <i>Dogol</i>	6.0–9.0	1.0–1.5	1–2	Inland and coastal waters
11. <i>Gelibat</i>	4.0–8.0	1.3–1.4	2–3	Coastal waters
12. <i>Jalorar</i>	4.0–8.0	1.2–1.6	3–4	Coastal waters
13. <i>Sekoci</i>	4.0–10.0	1.2–1.5	3–10	Coastal waters
14. <i>Bedar</i>	8.0–10.0	1.5	5–10	Coastal waters
15. <i>Lincang</i>	9.0–10.0	1.8	5–10	Sea-going
16. <i>Pengair</i>	9.0–10.0	1.8	5–10	Coastal waters
17. <i>Kuel</i>	8.0–8.5	1.5	5–8	Coastal waters
18. <i>Kolek</i>	10.0–11.0	1.8	5–7	Sea-going
19. <i>Payang</i>	10.0–15.0	1.8–2.4	15–20	Sea-going

(Created by the author)

This paper presents an ethnographic study of the boat-making traditional culture in Peninsular Malaysia, especially the *Kolek* boat (Figure 1) as a major Malay traditional boat, possibly from the 19<sup>th</sup> century (No. 18 in Table 1). It is difficult to ascertain exactly when the *Kolek* boat was first used by fishermen on the East Coast, but according to Gibson-Hill, the hull of the ship more closely resembles a



**Figure 1** Sketches of *Kolek* boats (Illustrated by the author)

*Pontian* Boat (Gibson-Hill 1954). Both boats share many similarities in their building techniques and shapes. The stempost shape changed when the engine was first introduced starting in 1955 for use with conventional fishing boats in Malaysia. The use of a high stempost causes vibrations on the boat, especially on *Kolek*, *Payang*, *Lincang*, and *Kuel* boats. Mainly for this reason, use of wooden boats has declined, which is also attributable to the unsuitability of the use of engines on conventional Malay boats. Figures 1A and 1B present an illustration of the shape of an earlier *Kolek* boat before it was changed to its current shape. Differences exist in the shape of the stempost designed to overcome that shortcoming.

Earlier *Kolek* boat shapes can also be viewed in museums in Malaysia such as at the Pekan Watercraft and Boat Gallery at Pahang, Terengganu State Museum at Terengganu, and Kelantan Traditional Royal Ceremonies Museum at Kelantan. Photo 1 from *Rusembilan: A Malay Fishing Village in Southern Thailand*, written by Thomas Fraser Jr (1962) also portrays a picture of a *Kolek* boat in its original shape.

It is noteworthy that the National Museum of Ethnology owns a beautiful *Kolek* boat collected in Ban Phraiwan, Takbai, Narathiwat Province, Southern Thailand. This boat was collected by Shigeharu Tanabe, a professor emeritus of the Minpaku, who conducted research in Southern Thailand in 1984. *Kolek* boats are known particularly in Kelantan state in eastern coast of Malay Peninsula and also along the eastern coast of Southern Thailand. Herein, the author reports some general aspects and structures of *Kolek* boats and the processes of boat building used in these regions, as well as their current situation. Finally, the author discusses the future of *Kolek* boats and boat-making technology from the perspective of conservation, in addition to describing the significance of the *Kolek* and *Bangau* materials stored at Minpaku.



**Photo 1** Shape of *Kolek* boat (Fraser Jr 1962)

## 2 Study of *Kolek* in Kelantan and Southern Thailand

Kelantan is a state at the border between Peninsular Malaysia and Southern Thailand. Although separated by the border, Kelantan and Southern Thailand were one nation under the Sultanate of Pattani Kingdom. The country was separated after the Anglo–Siamese Treaty in 1909. Kelantan and Southern Thailand have many cultural similarities. Relations among Malay communities in Kelantan and Southern Thailand are very close. In fact, many residents have cross-border kinship bonds. These bonds characterize the culture and way of life between these two areas. This study was conducted in Kelantan of the East Coast, Peninsular Malaysia and Southern Thailand, as shown on the map in Figure 2. Location of the fish-landing jetty site was tracked using GPS (Table 2). In this location, the author can trace some conventional Malay boats that are still used in Kelantan. Photo 2 shows a *Kolek* boat found at the fish landing jetty at Pulau Gajah Village, Kota Bharu. In addition, boatbuilding techniques were researched through interviews of the boat builders.

According to earlier studies, traditional boats of only two types are still used by fishermen in the state of Kelantan (Wahab and Ramli 2020). This investigation identified two other areas of Pulau Gajah Village and Kemasin area, Kelantan. Traditional boats such as the *Sekoci* and *Kolek* types are still used in the areas. However, because of economic changes and the recent transition of boatbuilding to new technologies, many traditional boats are threatened with extinction. Because of these situations, the use of traditional boats is declining. They are no longer popular. Consequently, the fishing community decided to use modern fiber boats. Maintenance of traditional boats costs was high. Fishermen started switching to the use of modern boats.

At Pulau Gajah Village, these boats are still used today, even though they were old boats. According to the Fisheries Officer in Kota Bharu, the boats here were



**Figure 2** Map of the East Coast of Peninsular Malaysia and Southern Thailand  
(Created by the author)

**Table 2** Location of research site

No.	Area	Location	Boat Type
1	Tok Bali, Pasir Puteh	5°52'39.5"N 102°27'35.6"E	<i>Sekoci</i>
2	Kg. Nelayan Kandis, Bachok	5°56'20.4"N 102°27'29.0"E	<i>Sekoci</i>
3	Kemasin, Bachok	6°07'38.4"N 102°22'08.7"E	<i>Sekoci</i>
4	Pantai Senak, Bachok	6°09'45.3"N 102°20'30.8"E	<i>Sekoci</i>
5	Pulau Gajah, Kota Bharu	6°09'55.5"N 102°20'11.2"E	<i>Kolek</i>
6	Pantai Sabak, Kota Bharu	6°10'21.3"N 102°19'30.9"E	<i>Kolek</i>
7	Jeti LKIM Geting, Tumpat	6°13'36.1"N 102°06'18.1"E	<i>Kolek</i>

(Created by the author)

mostly built over 60 years ago. This area is also attractive for tourists who love the environmental beauty and uniqueness because this environment is difficult to find elsewhere. The variety of colors and patterns on these boats provides an exciting experience to anyone who visits, especially during the monsoon season, when these boats are lifted ashore.



**Photo 2** *Kolek* boat in Pulau Gajah village, Kota Bharu, Malaysia (Photo by the author on May 4, 2016)

### 3 Description of *Kolek* Boats

*Kolek* boats are a main conventional boat used for transportation among the fishermen in Kelantan. According to Gibson-Hill (1954), this boat can be found in Kelantan, Terengganu and Pahang. *Kolek* boats derive their name from the word “*golek*,” which means “wobbly.” *Kolek* is a special word assigned as the first name of boats. There are many names related to *Kolek* in Peninsular Malaysia, such as *Kolek Licung*, *Kolek Kuel*, *Kolek Sehari Bulan*, and *Kolek Ciau*. All are known as *Kolek* because they are boats with a slightly curved keel shape. In fact, the communities along the East Coast called this boat *Kolek Buatan Barat*. It is known as the *Buatan Barat* because *barat* means west. This boat was built by boat builders from Southern Thailand. People on the East Coast refer to Southern Thailand as an area of the Westward wind.

#### 3.1 Name of Boat

Various names have been applied to this boat locally. Among the names used on this boat are *Kolek*, *Kolea*, *Rua Kolea*, *Perahu Kolek*, *Perahu Buatan Barat*, *Kolek Buatan Barat*, *Kolek Buatan Siam*, *Kolek Alek Barat*, *Lohor*, *Kolek Tangkol*, *Kolek Pukat Senyoh*, and *Payang Buatan Barat*.

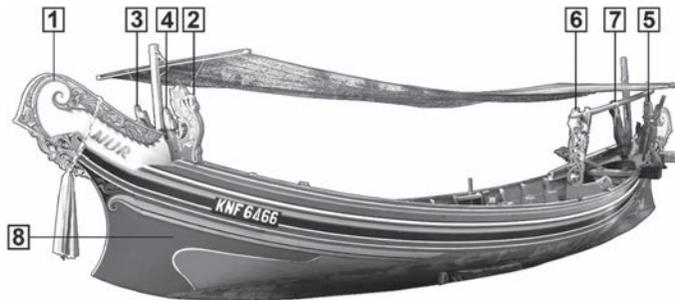
#### 3.2 Shape and Dimensions

*Kolek* boats are used by fishermen. This boat has a shape similar to the Terengganu *Payang* boat, but it has a high tapered stempost shape and a curved keel. However, the current form differs from that discussed earlier. The boat is 10–11 m long and 1.8–2 m wide, accommodating up to 20 passengers. However, during operation at sea, this boat generally carries 7–10 crew members only. *Kolek* boats are used to catch fish in the deep sea using lift nets, mackerel drift nets, longlines, and fishing traps (*bubu*). In earlier eras, these boats were propelled by sails and paddles. Today the boats have outboard engines installed.

The boats are decorated in bright colors and are painted with various shapes of figures and motifs. They are also equipped with decorative components that make them unique and different from boats of other types along the East Coast Peninsular Malaysia.

### 3.3 *Kolek* Boat Structure

This boat has a hull shape with a round bottom. It is particularly suitable for use in areas with large waves because of the curved shape at the bottom. The word *Kolek*, derived from “*golek*,” means roll in the East Coast dialect. This *Kolek* boat is adaptive to undulating water surfaces: it will roll when in wavy areas. In addition, the shape makes it difficult to sink. The boat design has the same shape between the boat bow and stern (Figure 3). The boat is decorated from the bow to the stern. Each of these decorative components has its own name and function. Details of each part and function are introduced in the next section.



1. *Kepala* (head–tail)
2. *Bangau* (carved spar rest)
3. *Okok* (rest for anchor)
4. *Caping* (middle *Bangau*-*Okok*)
5. *Sangga tepi* (rest for scoop)
6. *Sangga tengah* (rest for long punt pole)
7. *Koyang* (rest for rudder)
8. *Badan* (hull)

**Figure 3** Structure of decorative components on a *Kolek* boat (Photo by the author on May 4, 2016)

### 3.4 Boat Decorations

*Kolek* boats are made of hardwood. Each decorative part is made of the same wood and is carved with great accuracy. This *Kolek* boat is decorated with décor carved and painted on the entire boat.

Main functions of the respective components are explained below.

### 3.4.1 *Bangau* (carved spar rest)

A *Bangau* is an important component of the *Kolek* boat (Figure 4). It is a major characteristic of all fishing boats along the East Coast of Peninsular Malaysia. *Bangau* are made of wooden boards carved in the shape of a bird (heron). Generally, wooden boards are carved with various designs such as herons or other birds, or dragons. The components are called *Okok*. Usually, *Bangau* is made from a piece of wood along with *Okok*. The position of the *Bangau* is on the left side whereas the *Okok* is on the right side of boats. The *Bangau* is larger than an *Okok*. *Bangau* is a piece of board shaped like a hanger. A pole is placed on the top when a strong wave approaches. The main function is to hang a sail pole when it is not in use so that the long pole does not roll and fall into the sea. *Bangau* is also a symbol of spirit, with associated taboos such as that it is never be trampled. When the operation is finished, the *Bangau* will be removed and brought back home.



**Figure 4** *Bangau* (Photo by the author on May 4, 2016)

### 3.4.2 *Okok* (rest for anchor)

An *Okok* or “*ongkok*” is located on the right front of the boat (Figure 5). An *Okok* made from a piece of wood board along with a *Bangau*. It is smaller than the *Bangau*. *Okok*, a decorative component, is known as a young bird. This *Okok* is used to place anchors. While sailing, the anchor is lifted and placed on the *Okok*, which is located on the right side of the boat. In the past, this *Okok* was carved with various shapes such as shadow puppet characters, birds, and dragons. Nowadays, it is produced with a dragon shape. *Bangau* and *Okok* have dragon-shaped tails.

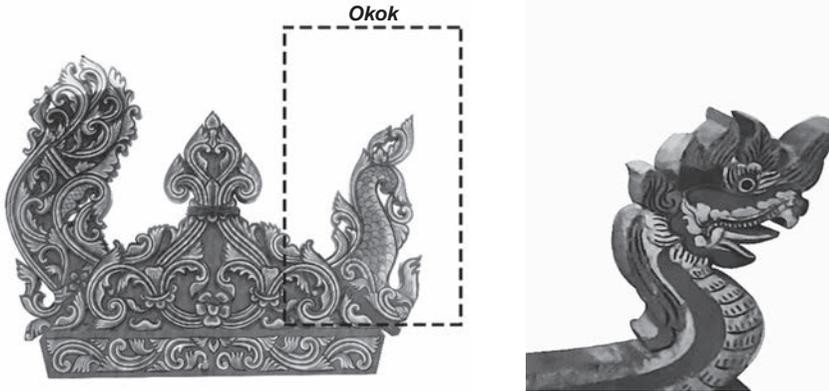


Figure 5 *Okok* (Photo by the author on May 4, 2016)

### 3.4.3 *Caping* (middle *Bangau-Okok*)

*Caping* is a décor component between the *Bangau* and the *Okok* (Figure 6). This *Caping* is attached to the boat permanently. The size is related to the boat height. *Caping* is a carving of a wooden board shaped like a triangle. It is also known as a *pokok beringin* tree (*Ficus benjamina*), one character of shadow puppetry. It is carved very carefully. Most of the carving is in the shape of flora. This *Caping* is attached to the *Bangau* and *Okok* boards. It is also a divider between the *Bangau* and *Okok*. In the past, the fishermen used to perform the offering ceremony (*menyemah*) before they went to sea.

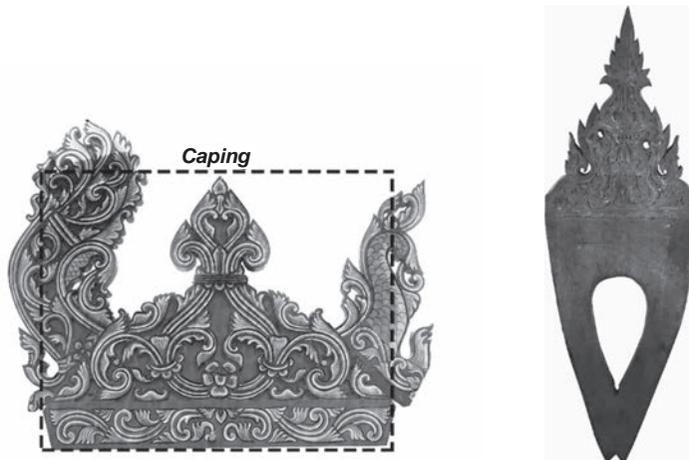


Figure 6 *Caping* (Photo by the author on May 4, 2016)

### 3.4.4 *Sangga tepi* (rest for scoop)

*Sangga tepi*, a decorative component of the *Kolek* boat (Figure 7), is located at

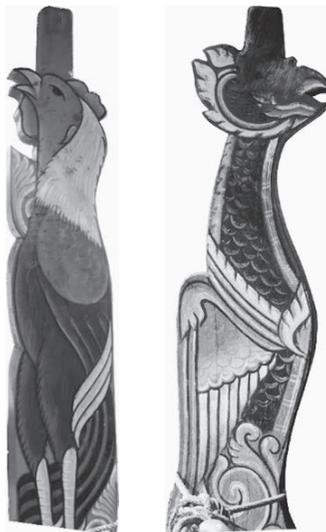
the back part of the boat. *Sangga tepi* are of two types: the middle *Sangga* and the side *Sangga*. This *Sangga* is used to place a scoop and long pole. This *Sangga* is also made of a piece of wood carved into the shape of a bird and dragon.



**Figure 7** *Sangga tepi* (Photo by the author on May 4, 2016)

#### 3.4.5 *Koyang* (rest for rudder)

*Koyang* is a part of the décor and furnishings placed in the center of the boat (Figure 8). *Koyang* has a pole placed at the stern. It is mounted as tilted slightly



**Figure 8** *Koyang* (Photo by the author on May 4, 2016)

inwards. This tool is used as a pole to support the rudder. It is noteworthy that the rudder is fastened by *Koyang* while the crew controls the boat. Normally, *Koyang* is a carved and painted figure of a bird as if a bird were controlling the boat direction.

#### 3.4.6 Hull of Boat

The boat hull is usually painted with various bright and attractive colors (Figure 9). Among the commonly used motifs and figures are mythological animals such as dragons, eagles, snake, and characters from traditional Malay shadow puppetry. However, most *Kolek* boats in Kelantan using flora and abstract motifs were painted with plain colors only. At the bow, a section is a removable part from the boat hull called *kepak* (Figure 10). This part works as a tool for splitting the waves while the boat is sailing.



Figure 9 Drawing on the hull (Photo by the author on May 4, 2016)



Figure 10 *Kepak* part of hull (Photo by the author on May 4, 2016)

## 4 *Kolek* Boat in National Museum of Ethnology in Japan

One item among the boat collections kept at the National Museum of Ethnology in Japan (Minpaku) is the *Kolek* boat (Photo 3). According to the Minpaku records, the boat was purchased from Ban (village) Phraiwan, Takbai, Narathiwat Province, Southern Thailand. Phraiwan village is an estuary area in Southern Thailand that is close to the Malaysian border. This is a traditional village inhabited by Muslim Malays who run a fishing economy.



**Photo 3** *Kolek* boat at the National Museum of Ethnology, Japan (Photo by Rintaro Ono in February 2020)

Most probably, this boat was made by a master boat builder, Cm, who was 65 years old in 2016. He migrated from Kelantan, Malaysia to Southern Thailand in around 1970 and started his career as an assistant to his uncle: a famous boat builder in Narathiwat Province. Actually, Cm has built dozens of *Kolek* boats. To this day, he is still active in his work as a boat builder. In this village also lives an artist, M, who is 62 years old who paints *Kolek* boats. Once the boat was completed, M would take over the task of painting the boat. This *Kolek* boat in Minpaku might also have been painted by M based on a drawing of a dragon figure found on the hull of the boat. Each of these paintings has an identity from the artist based on the curves and color combinations used.

Based on Photo 3, the use of dragon figures and motif with *dala* leaves or fire leaves (*Crataeva macrocarpa*) reflect the influence of Buddhism. Furthermore, here can also be seen the use of Javanese motifs that might indicate the presence of Malay and Javanese influences. According to M, he was very interested in classical Malay stories such as *Ismu Dewa Pekerma Raja*, *Hikayat Sri Rama*, and *Cerita Panji* (folk literature) as a child. The main characters from these stories became themes for his paintings along with stylized local motifs.

Referring to a collection of boat equipment from Malaysia at the Minpaku, there are *Bangau* of three types. The *Bangau* is the main identity for boats on the East Coast of Peninsular Malaysia. Three *Bangaus* collected by the Minpaku are the original components used on fishing boats. It is possible that the equipment was used on the *Setak*, *Kolek Kuel*, and *Kolek* boats. A miniature of *Kolek* boats is kept as the collection of the Minpaku as well. This miniature has become a cultural icon for the Malay community in Southern Thailand. It is used for cottage industry

products by the community in Southern Thailand. Small boats are used as souvenirs to support the tourism industry. It is also listed as a “One *Tambon* One Product (OTOP)” projected by the Thai government to develop a focus product that has the potential to be undertaken by local residents.

## 5 *Kolek* Boat Building Process

At present, the manufacture of *Kolek* boats can still be found to occur in Nara province in Southern Thailand. This study was also conducted in Phraiwan village, where a *Kolek* boat was procured by the Minpaku. The boat building is still conducted in the conventional way, where the boatbuilder uses techniques handed down from generation to generation. They still use conventional equipment. The building process takes a long time. According to boat builders, this process takes one to two years, and depends on wood supplies and weather. The boat builder builds this *Kolek* boat with no guide plan or blueprint. They need only know the boat length and the budget from the buyer. Buyers must also wait from one to two years depending on the number of orders that have been completed. This work is done by only one or two workers. They also receive orders from customers from Southern Thailand and Malaysia.

*Kolek* boats are made of *Chengal* wood (*Neobalanocarpus heimii*), a hard wood is suitable for boat building. *Chengal* wood is expensive. For that reason, *Kolek* boats are necessarily expensive. Despite the high cost, boatbuilders still use this wood against strong waves. *Kolek* boats are built using no iron nails. Each board is connected using wooden dowels. The construction begins on the wall first; then the frame is installed (Photo 4).

### 5.1 Boat Building Process

The first step in boat building is selecting a suitable wood to use for the keel. The wood selection must be done carefully. The keel should not be from defective



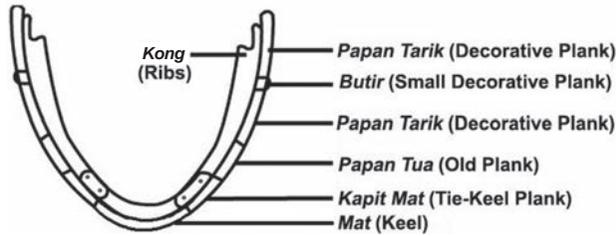
**Photo 4** *Timbal* process of bending the board (Photo by the author on January 24, 2018)

wood. The selected wood will be dried under the sun for several months in a vertical position. The boatbuilder uses a straight and hard wood to produce the keel. The keel will be bent by placing stumps of coconut trees at both ends of the keel. Next, the boatbuilder chooses a wooden board to make a boat plank. The wooden board will be bent to a specific angle before being heated with flame by coconut coir. This technique, known as *timbal*, involves the boatbuilder bending the boards into specific shapes (Photo 5). The board represents the desired form when it has dried completely.

The curved boards will then be vertically joined together using wooden dowels and adhesive glue. These wooden dowels are made of a hard wood called *Penaga* (*Mesua aff. assamica*), whereas the adhesive glue is made from the tree bark of *Gelam* (*Melaleuca cajuputi*). In the next step, bottoms of planks are formed. The board will be tightened with iron wire until each plank is firmly attached. This process takes a long time. The outside of the planks will be scraped so that the joints



**Photo 5** *Koleh* boat building process (Photo by the author on January 24, 2018)



**Figure 11** Structures and names of the *Koleh* boat planks (Illustrated by the author)

between the two boards can no longer be seen. The most interesting point about joining planks is that each plank is given a certain name. Also, the degree of flexibility of the boards is listed by name as follows (Figure 11).

The boat builder provides the *kong*, which is a part of the frame. It becomes a rib that is installed on the planks. Furthermore, the frame supports the planks and mounts them horizontally. The *setel* will be installed parallel inside of the boat. The last step in producing the boat is installation of the floorboard. Normally, the floorboard is not fastened firmly to the frame, thereby facilitating removal of stagnant water.

## 5.2 Decoration Process

The decoration process is the last process undertaken before the boat is handed over to the owner. Once the boat is completed, the decorative components are installed according to the boat owner's requests. Nowadays, these decoration components are produced from the same mould. The uniqueness of each component depends on the work of painting and drawing. Unlike in the past, boat owners have the choice of ordering components such as *Bangau* and *Caping* from other wood carvers or making it themselves. The *Bangau* and *Caping* are carved with artistic and aesthetic effort by the woodcarvers. Once this process is completed, the boat is handed over to the artist for painting. The painter starts by painting the entire boat white as an undercoat color before adding bright colors to match the motif requested by the boat owner (Photo 6).

This process takes two weeks to one month, depending on details of the drawing. At present, the created themes are related to Malay art such as batik painting, wood carving, beautiful scenery, and are combined with floral motifs. The most difficult challenge for a painter is to draw the same image on both sides of the boat, which requires great memory. This painting process is important because it protects the boat from degrading pests such as barnacles. Barnacles cause degradation of the wood, especially wood that has been submerged in water. According to the indigenous knowledge of fishermen, the use of bright colors can also attract fish when fishing.



**Photo 6** Painter painting and decorating the boats (Photo by the author on January 24, 2018)

## 6 Discussion and Conclusion

*Kolek* boats from the East Coast of Peninsular Malaysia are very valuable cultural materials. They not only serve as a means of water transport, but also give cultural value to the nation. This boat, which is known by various names, is used in various places along the East Coast. Results of earlier studies have indicated that these boats have been widely used and that they can be found from Pahang to Southern Thailand. Although *Kolek* boats were transformed because of the introduction of engines, boat builders have made efforts to create designs for characterizing the boats. Therefore, *Kolek* boats can be found even now.

Producing a boat is complicated work that requires skill and precision in all respects because the boat cannot be tested before being launched into the water. This task requires a high degree of skill. Furthermore, *Kolek* boat construction is conducted by a few workers with no particular plans. Therefore, the building process fundamentally takes a long time.

The *Kolek* boat building technique is also an evolution from lashed lugs (Manguin 2019). Formerly, the lash-lug tradition was popularly used on boats in Southeast Asia. Archaeological findings revealed that this technique was used from prehistoric times (Wahab et al. 2014). Planks are made with protruding lugs, cleats and whips to fasten them. These planks are then fastened with wood nails. The lugs are tridents with ropes to support the hull structure. This technique has evolved to a process by which the boat builder uses only wooden dowels that hold the strips together, entirely using dowels, with support by *kong* or ribs.

The discovery of *Kolek* boats in several locations of Kelantan and Pattani state shows that this boat is preserved as local heritage and art. However, *Kolek* boats have become scarce drastically because of their high maintenance costs and competition with modern boats that are built more economically with lower cost. This situation also threatens the existence of *Kolek* boats. The building process should

be taught to young artisans so that the knowledge will not disappear. In addition, these boatbuilding processes should be documented in greater detail to preserve *Kolek* boat traditions.

This study confirms that a traditional boat has its own uniqueness. Each structure on these boats is decorated and adorned in a unique way. The use of the decoration distinguishes boats from other boats. Art and embellishments have specific meaning, cultural value, and philosophy in the old Malay world. The production of decorative components on *Kolek* boats is also important because they give spirit to the fishermen. There are aesthetic values and values derived from society's past beliefs about safety at sea and symbols of prosperity that might not be understood by the present generation. The production of *Kolek* boats also demonstrates the intellectual and artistic power conveyed through boat production.

A *Kolek* boat is included in one boat collection stored at the National Museum of Ethnology, Japan (Minpaku). The initiative taken by Minpaku in assembling boat collections and boat accessories represents a valuable effort. The *Kolek* boat collection of Minpaku becomes a valuable resource for researchers from around the world to examine and access direct information. However, in-depth ethnographic studies undertaken to record details of the *Kolek* boat building process are done only insufficiently. Such studies, including the making of ethnographic films, are necessary for our future research. A comprehensive study should be continued by recording detailed information and the methods of building them. Additionally, information related to *Kolek* boats can be collected from some fish landing jetty locations in Kelantan and Southern Thailand. Boat builders can be traced. This study indicates that *Kolek* boats have considerable value as historical heritage today, especially in Malaysia and Thailand.

## Acknowledgments

I would like to express my gratitude to the National Museum of Ethnology, Japan provided a travel grant to visit and to attend the international workshop held by the museum. I also appreciated to Dr. Rintaro Ono, an associate professor of Minpaku who invited me to the international workshop at Minpaku as well as to this special theme project. Lastly, I express cordial gratitude to local informants who provided valuable information for future preservation of the *Kolek* boat.

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