

# Traditional Ship Design "LancangKuning" for Competition

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**Abstract.** One of Indonesia's ten indigenous boat types is the Lancang Kuning. The traditional ship form survives in certain places. However, the Malay people of the Riau Archipelago do not use boats of the Lancang Kuning design. Riau Islands Provincial Government Logo, Universitas Maritim Raja Ali Haji Logo, Bintan Regency Logo, Malay Traditional Institution Logo, Karimun Regency Logo, and Natuna Regency Logo are only a few of the many logos in the province that use the arrogant boat emblem. We located Panglima Hitam Lancang Kuning's tomb at Sei Carang Tanjungpinang. The Riau Provincial Government Logo, Lancang Kuning University Logo, Riau Malay Traditional Institution Logo, and the logos for the regencies of Bengkalis, Meranti, and Rokan Hilir all use the Lancang boat emblem. Earlier, on March 24, 2015, CID201500016 (in progress), a patent was filed for the Riau-Pekanbaru version of the "Lancang Kuning" sailboat, which was made in homage to a sailing ship from the heyday of the Palalawan kingdom (Muh. Takbir S. 2015); COO2011050014 (recorded), Batik Boat Lancang Kuning COO200902159 (recorded), Mojop Wood is used for everything. Eight oars are used in the traditional Lancang Kuning boat for the race: four on the left, four on the right, and one to steer. The traditional Lancang Kuningboat is propelled by a crew of five, four paddles and one acting as a tekong to steer.

**Keywords:** Traditional ship; lancang kuning; design

## 1 Introduction

The preparation of the Universitas Maritim Raja Ali Haji Research Master Plan is formulated for five years which can be used as a focus and locus for research among the UMRAH academic community for the coming years, divided into three stages with different themes but in a continuous pattern. The achievement of the target stage is planned to start in 2015 - 2019, in Phase I, which leads to research-oriented identification, documentation, inventory, data, and local wisdom, as well as the use of technology with local nuances on a regional scale that is more primarily maritime-oriented. Then the second stage of 2020-2024 focuses on research-oriented design, resource management and utilization models, technological development, economics, law, education, socio-culture, and patented products based on maritime at national and regional scales. Furthermore, in 2025 - 2029 Phase III leads to research oriented towards increasing market share with innovative products and the creative

industry economy as copyright and intellectual property at regional, national, and international levels based on maritime.

One of Indonesia's ten indigenous boat types is the Lancang Kuning. The traditional ship form survives in certain places. However, the Malay people of Bintan, Riau Islands, do not use the Lancang Kuning boat. Among the Bintan Malay people, the boat known as the Lancang Kuning has entered the realm of traditional knowledge. About 30 meters from the coast, the wreckage was buried in the sand as deep as 1 or 2 meters. At its widest point, the wreck is between 7 and 7.5 meters, and its length is at least 23.40 meters. There is no longer a covering over the ruin. In general, the beginning and finish are narrower than the middle. A common emblem in the Riau Islands is a boat that seems full of itself. Province, comprising the logos for the Bintan Regency, the Karimun Regency, the Natuna Regency, the Riau Islands Provincial Government, and the Universitas Maritim Raja Ali Haji.

We located Panglima Hitam Lancang Kuning's tomb at Sei Carang Tanjungpinang. Riau Province's emblematic boat, the Lancang, appears on the logos of the provincial government, the university, the Riau Malay Traditional Institution, and the regencies of Bengkalis, Meranti, and Rokan Hilir. Previous inventions include the Batik Boat Lancang Kuning (COO2011050014), COO200902159 (recorded), the Mojopahit traditional sailing boat (COO199900271), and the Pinisi Boat (COO200201304), all of which were inspired by a sailing ship from the heyday of the Palalawan kingdom (Muh. Takbir S. 2015). (documented).

Wooden objects are everywhere. Sepang/sappan wood (*Caesalpinia sappan*) is utilized for the pegs in this creation, whereas ivory is classified as bulgur wood (*Lagerstroemia* spp.). Wood that is either ironwood/belian or filthy (*Eusideroxylon zwageri*) is used for the boat's ends. The discovery of the boat wreck and its contents shed light on the technical elements of shipbuilding [1]. Water transport as a method of commerce and transit is important, but so is learning about the history of boat construction. The scarcity of recorded material on the history of water transportation technology from previous centuries is somewhat remedied by the abundance of archaeological data. Everything wonderful, glorious, powerful, and heroic may be found in the name of Lancang Kuning. For this reason, Lancang Kuning is celebrated in folk songs, plays a significant role in traditional medicine rituals (Belia and Ancak), and is the subject of folk tales and dances. In the Malay film *Lancang Kuning* from 1962, the boat is mentioned in the song "Lancang Kuning," which is sung by Admiral Raja at Sea (Mrs. Iyet Bustami).

A simple search for patents at the DJKI shows that there are several that have been found, including:

1. Rowing boat products (status in progress P00201906350). The material composition of the rowboat is a hybrid composite of glass fiber and jute. The paddle is reinforced by E-Glass and jute fibers coated with several layers of chopped strand mat and jute fibers to obtain maximum physical and mechanical strength.
2. Boat with electric propulsion. The present invention relates to a boat with electric propulsion and the primary voltage source, which provides power for the electric propulsion, and to an auxiliary voltage source, which provides (status given P00201502815).
3. Traditional electric boat. Traditional electric ships are dedicated to conventional boats used by small communities for fishing. (status in progress P28201705926).
4. Boats with high-voltage systems The present invention relates to vessels having electric propulsion, wherein the electric propulsion comprises an electric component, in particular an electric motor and an electric accumulator, i.e., connected (status is given P00201502808).

As a basis for considering research activities, there is an MOU between the Tanjungpinang City Government No. 181/1.1.02/I/MOU/2020 and the Universitas Maritim Raja Ali Haji No. 1379/UN53.0/KS/2020 dated March 11, 2021, as attached. Furthermore, according to the RIP of the Universitas Maritim Raja Ali Haji 2020-2024. The series of research road maps that have been carried out are:

**Table 1.** "Lancang Kuning" Boat Research Activities

No	Research Activity Name	Year	Outcome
1	Local Wisdom of the Shipbuilding Industry, the Malay community of Bintan, Riau Islands (study of the Lancang Kuning boat)	2018	Book
2	Lancang Kuning traditional boat design	2019	Simple patent
3	Mechanical oars as propulsion for traditional "Lancang Kuning" boats	2020	Simple patent
4	Traditional "Lancang Kuning" Boat Design for the race	2021	Simple patent

Source: Author, 2022

We will perform a series of studies as a team, looking at this problem from several angles. Consequently, the study is the last installment of the Lancang Kuning Boat's saga. The Research Master Plan created for 2020–2024 is consistent with the historic Lancang Kuning boat design that will be used in the competition. This study was carried out to develop a standard Lancang Kuning boat for the competition. The research aims to update the traditional Malay boat design of the Riau Islands' Malay community, the Lancang Kuning, to reflect advances in science and technology. This study's results will help establish the traditional Lancang Kuning boat as a distinctive symbol of the Riau Archipelago.

## 2 Research Method

Methodologically, qualitative data analysis is offered as the method of analysis [2]. Those are the steps of data collecting, data reduction, data presentation, and finally, conclusion. Reducing the amount of data collected is the first step. Raw data is transformed into useful information utilizing selection, focus, and validity. The second kind of data presentation is a compilation of easily digestible data to its methodical layout [3]. In addition, the last step of data analysis performed to see the outcomes of data reduction still goes back to the problem's formulation and the goals to be attained [4].

## 3 Result

The first step is to conduct surveys and interviews regarding the boat and the shape of the Lancang Kuning boat that will be used for the competition; The second step is to design the shape of the Lancang Kuning boat; In the third step, researchers prepare materials in the form of boards from durian trees; looking for the keel from the betel tree; looking for a place for carving that matches the Lancang Kuning boat; buy materials and tools, then the fourth step is starting work. The actions and tapas are as follows:

Step 1



**Fig. 1.** Materials in the form of keel boards are collected

Step 2



**Fig. 2.** The board and keel are ketam and smoothed with coarse sandpaper

Step 3



**Fig. 3.** Given a tapered bottom

Step 4.



**Fig. 4.** Given a tapered bottom

Step 5.



**Fig. 5.** Preparation of materials for putty with resin

Step 6



**Fig. 6.** "Lancang Kuning" boat body in putty

Step 7



**Fig. 7.** Preparation of materials for painting

Step 8



**Fig. 8.** "Lancang Kuning" boat with the lacquered floor, four sets of paddles, plus one rudder ready to use

### 3 Discussion

Based on the results of a study by the Medan Archeology Agency (2017), a large shipwreck was found that sank on the shores of any Lagoi beach. The size of the boat was approximately 22.4 meters with a width of 7-7.5 M made of wood. The initial research conducted by Rumzi and Khodijah is an initial study of local wisdom in the shipping industry of the Malay community of Bintan, Riau Islands, and the study of the Lancang Kuning boat [5]. Here, various stories about the Lancang Kuning boat developed, whether made into a widescreen film in 1962 in Malaysia; The Lancang Kuning Boat, Bukit Batu Siak-Riau by Tennas Effendi, as well as the Bintan and Galang-Batam folklore versions. Further research with the prototype of the Lancang Kuning boat (2019) tried to design it in a mini form made of alkaline wood, which was specially ordered to make the shape of the ship following the results of the Medan archaeological study.

Subsequent research with Mechanical Paddle as the driving force of the Lancang Kuning Boat [6]. This study examines that the Lancang Kuning boat has traditional but modern values, so the oars were initially driven by human power and replaced with mechanical or mechanical energy. The previous research reviewed the Lancang Kuning boat design for the race [7]. With a limited budget, the researchers tried to make a Lancang Kuning boat for racing with four sets of oars for four people and one person steering. The results obtained hopefully meet what is desired with Malay characteristics. There should be a traditional Lancang Kuning boat race instead of other boat competitions with no Malay elements. The dominant color is yellow mixed with green and red. This is a combination of 3 colors that are always used as a veil on the seat of the Malay bride and the office of the Malay Traditional Institute as well as Malay greatness events, for example, giving customary titles to Malay leaders such as regents/mayors or governors with the title Dato' Setia Amanah.

The product will be a Lancang Kuning boat with four rowers and one steering wheel. Lancang Kuning boat is 16 feet long, with eight pieces of oars plus one rudder. The royal yellow outer body, aka Raja's yellow, is paired with green for the clergy and red for boldness. Furthermore, this boat will soon be patented. The draft description is as follows:

1. Field of Intervention Engineering; This invention relates to the design [8] of the traditional Lancang Kuning boat for racing activities as the forerunner of the conventional Lancang Kuning boat, which is recognized among ten traditional ships in Indonesia, one of which is located in the Riau Archipelago in the form of the Lancang Kuning traditional boat.
2. Background of the Invention; The previous invention, the Riau-Pekanbaru version of the Lancang Kuning sailboat, was inspired by a sailing ship during the heyday of the Palalawan kingdom (Muh. Takbir S. 2015), only on patent registration on March 24, 2015, CID201500016 (in progress); Batik Boat Lancang Kuning COO2011050014 (noted); COO200902159 (recorded), Mojopahit traditional sailing boat COO199900271 (noted); Phinisi Boat COO200201304 (noted); Everything is made of wood.

A simple search for patents at the DJKI Traditional Boat "Lancang Kuning" found that there were several, including:

- a. Composition of glass fiber and jute composite rowboat material [9]. Maximum physical and mechanical strength is achieved by reinforcing the paddle with E-glass and jute fibers covered in many layers and chopped strand mat and jute. Product information for a rowing boat (process status P00201906350).
- b. Powered by batteries, this boat can move at high speeds. The current invention pertains to an electric-powered boat, its major voltage source, which powers the electric propulsion, and its secondary voltage source, which powers the auxiliary electric propulsion systems (status given P00201502815).
- c. Typical electric boat. When it comes to fishing, tiny towns often rely on conventional boats, which are the focus of traditional electric ships (status in progress P28201705926).
- d. Electric boats with a high voltage system The electric industry of the present invention consists of an electric component, namely an electric motor and an electric accumulator, which are coupled to provide propulsion for electric-powered boats (status is given P00201502808) [10],

The summary of the proposed invention is a traditional Lancang Kuning boat design with a length of 20 feet, a height of 1.5 meters, eight-oar blades, and one rudder. The boat's body is yellow, with a yellow fish carved around the outside. An embodiment of this invention is described using the attached drawing to facilitate an understanding of the present invention. The traditional "Lancang Kuning" boat design for the competition consists of Eight oars consist of 4 oars from the left side and four oars from the right side, and one paddle for steering; the invention of the traditional boat "Lancang Kuning" is driven by human power as the driving force for this boat. This boat looks traditional.

## 4 Conclusion

The traditional "Lancang Kuning" race boat design is 5.51 M long, 1.0 M wide, and 0.56 M high, equipped with eight oars (4 oars on the right and four oars on the left) and one rudder. It is hoped that the Tanjungpinang city government and the Riau Islands Provincial Government can take advantage of the "Lancang Kuning" boat design. Then it can be used as a competition venue following the maritime tradition of the Kepulauan Riau Malay community. Moreover, the traditional design innovation of the "Lancang Kuning" boat can be part of the needs of the people in the Kepulauan Riau.

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