

The Process of Making a Pinisi Boat in Bantobahari District, Bulukumba Regency, Indonesia

Akhmad, Amir, Asdi, Muhammad Yunus Ali, and Anwar

Abstract — Pinisi boats are made by expert hands called *panrita lopi* (experts in making boats). The pinisi boat has proven its worth by conquering the vast oceans and exploring various countries in the world. This study aims to identify the process of making pinisi boats in Bontobahari District, Bulukumba Regency. This research was conducted in Bontobahari District, Bulukumba Regency, South Sulawesi Province. Data were obtained through in-depth and structured interviews, using key informants who were determined purposively. Key informants consist of; the owner of a pinisi boat-making business, *panrita lopi*. The analytical technique used in this research is descriptive analysis. In this case, the researcher will describe the process or stages of making a pinisi boat in Bontobahari District, Bulukumba Regency. The results showed that the process of making a pinisi boat includes eight stages, namely, preparation, cutting the keel, working on the boat body which includes installation of boat walls, installation of frames, and making of decks, work on pinisi boat rooms, work on sails and sails for pinisi boats, painting of pinisi boats, installation of engines and rudders for pinisi boats, and launching of pinisi boat.

Keywords — Panrita Lopi, Pinisi Boat, Production.

I. INTRODUCTION

The maritime history of the Bugis, Makassar and Mandar tribes is related to the development of boats as the forerunner to the creation of the pinisi boat in the maritime context of the country. The boat industry is part of the rural industry [1] Its role in spurring the development of coastal villages cannot be ignored, especially in employment and regional economic growth. One form of rural industry is the boat-building industry. Bugis people build boats for inter-island transportation, as a means of transportation for wandering and fishing. The boat has also become a symbol of their maritime culture [2], [3].

The pinisi boat is a cultural heritage of the ancestors of the Indonesian people which characterizes the identity of this nation as a maritime nation. Pinisi boats are made by expert hands called *panrita lopi* (experts in making boats/ships) without using the help of modern equipment. The pinisi boat has proven its specialty by conquering the vast ocean and exploring various countries in the world, [2]. Bulukumba Regency is famous as a district for making pinisi boats, it's no wonder that this district has been nicknamed Butta Panrita Lopi (the residence of boat experts).

The pinisi boat industry developed in Bontobahari District, Bulukumba Regency is a labor-intensive industry. Besides involving a lot of labor, the pinisi boat industry is also a cultural heritage of the archipelago that needs to be preserved. In addition, the pinisi boat produced by Panrita Lopi in Bulukumba Regency has been designated by UNESCO as an intangible world cultural heritage, or intangible cultural heritage of humanity. Therefore, it is interesting to study the development of the pinisi boat industry as a creative industry that is labor intensive, and full of local cultural values in Bulukumba Regency [4]. Based on this description, this study aims to identify the process of making pinisi boats in Bontobahari District, Bulukumba Regency.

II. LITERATURE REVIEW

The development of science and technology today has changed the way humans communicate, live, and work. The rapid changes in technology are also supported by the development of communication and computer networks that allow today's companies to react quickly to desired updates and changes [5],[6].

The activity of making goods and services occurs in all sectors of the organization. Production activities make goods very visible to manufacturing companies. We can see clearly making real items such as Wardrobe, flour, Ship, Car, TV, and others. Whereas in other organizations that do not produce tangible goods, the production/operations function may not be very visible. In fact, it is often hidden from the public. For example, transportation services, transactions that occur at banks, and even universities. In a broader sense, production is related to the production of goods and services. Every day we encounter an abundance of goods or services, all of which are produced [7],[8].

Geographically, Indonesia as the largest archipelagic country in the world is located in a very strategic position because it is located between two oceans, namely the Indian Ocean and the Pacific Ocean, which are trade routes between Asia-Pacific countries where about 70 percent of world trade takes place there, [9],[10]. With the longest coastline in the world, Indonesia should have enormous potential to enter the world's shipping industry competition, especially the shipbuilding industry. But in reality, the shipping industry in Indonesia is still difficulty competing in the international market. The shipbuilding industry is a labor-intensive,

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Akhmad, Faculty of Economy and Business, Muhammadiyah University, Indonesia.

(e-mail: akhmad.pide@unismuh.ac.id)

Amir, Faculty of Economy and Business, Muhammadiyah University Indonesia.

(e-mail: amir@unismuh.ac.id)

Asdi, Faculty of Economy and Business, Muhammadiyah University, Indonesia.

(e-mail: asdimuh@yahoo.co.id)

M. Y. Ali, Faculty of Engineering, Muhammadiyah University, Indonesia.

(e-mail: muh.yunusali@unismuh.ac.id)

Anwar, Faculty Teacher Training and Education, Halu Oleo University, Indonesia.

(e-mail: anwarhapide61@gmail.com)

capital-intensive, and technology-intensive industry [11]. There are several problems related to the shipbuilding industry in Indonesia according to [12], including: (1) The capacity and productivity of national shipyards are still low, (2) Facilities and equipment in many shipyards are old, (3) Price ships made in domestic shipyards are relatively expensive 10 to 30 percent, (4) Weak support from local banks, and (5) About 70 to 80 percent of ship components and materials still have to be imported.

The shipping industry which is labor-intensive, capital-intensive, and technology-intensive, requires serious handling and attention from the government in order to be able to develop and be competitive. For Indonesia, the maritime sector not only serves to increase economic activity but more than that, as a symbol of state power and sovereignty. Therefore, the shipbuilding industry as a manifestation of these ideals has enormous duties and responsibilities so that the interests of the state in the context of realizing inter-regional connectivity through strengthening sea transportation facilities can be realized.

At first, our ancestors made boats with a simple skill, namely linking several bamboo sticks together, later known as a raft boat. However, raft boats are only suitable for short distances because raft boats are not able to withstand waves. On the other hand, there are relics of primitive types of boats, such as those made of large trees with a hole in the middle-called canoes. To use the canoe so that it can walk, paddles are used which are driven by human power. This type of boat was the most popular in ancient times. Along with the times, this canoe-shaped boat was then made a sail. The function of the sail is to use the wind to move the boat as a substitute for human power [4].

The pinisi boat is a special boat. All parts of the boat are made of wood. Nevertheless, the pinisi boat has proven its specialty by conquering the oceans and exploring the countries of the world. Although made of wood, this boat is able to withstand the brunt of the waves and storms on the high seas. This traditional Pinisi boat has two main masts with seven sails. Three sails were installed at the front end, two sails at the front, and two more sails were installed at the rear of the boat. These sails are used as auxiliary means of motion of the ship when sailing. The Pinisi boat is the only large wooden boat from past history that is still being produced today [13].

III. RESEARCH METHODS

This research was conducted in Bontobahari District, Bulukumba Regency, South Sulawesi Province. Data were obtained through in-depth and structured interviews, using key informants who were determined purposively. Key informants consist of; the owner of a pinisi boat manufacturing business, panrita lopi (an expert in pinisi boat makers) in Bontobahari Subdistrict, Bulukumba Regency. The analytical technique used in this research is descriptive analysis, in this case the researcher will describe the process or stages of making pinisi boats in Bonto Bahari District, Bulukumba Regency, so that they become *panrita lopi*.

IV. RESEARCH RESULTS AND DISCUSSION

The process of making Pinisi boats, Bonto Bahari District, Bulukumba Regency, has shifted slightly according to the dynamics of the development of the shipping industry and community development. The results showed that the process of making pinisi boats in Bontobahari Subdistrict, Bulukumba Regency can be grouped into eight stages, namely: (1) Preparation, (2), cutting the keel, (3) making the boat hull, (4) working on the pinisi boat room, (5) working on the sails and sails of the pinisi boat, (6) painting the pinisi boat, (7) installing the engine and rudder of the pinisi boat, and (8) launching the pinisi boat.

A. Preparation

For the preparation stage, here it is divided into 3 important components, namely, (a) a contract agreement between the buyer and the boat entrepreneur, (b) an agreement with the workforce (*panrita lopi*) who will work on the pinisi boat to completion. and (c) readiness of wood materials to be used in shipbuilding.

1) Cooperation agreement contract

The results of in-depth interviews with several entrepreneurs and the *panrita lopi* committee, said that generally, entrepreneurs will make boats if there is an order. pinisi ship, first make a mutual agreement on the rights and obligations as outlined in the Cooperation Agreement (Contract) between the first party (the Buyer) and the second party (the seller). comfortable, smooth, and mutually beneficial.

According to *Panrita Lopi*, after there is an agreement between investors (buyers) and shipbuilders regarding the price of the ship, the size of the ship's capacity, the duration of the ship's work, and the payment system as outlined in the cooperation agreement (contract) that has been signed together and the payment terms have been made. the first is 30% of the value of the ship, just starting the shipbuilding process. The same thing was conveyed by *panrita lopi*, a pinisi shipbuilder for tourism, that every ship made has been bound by a contract by the buyer with the shipbuilder regarding the price, duration of work, the size of the ship made, and the payment system. The payment system for each investor is different from one other, but this is not a problem because it has been done by deliberation and consensus.

2) Contracts with workers

The results of in-depth interviews with several businessmen and *panrita lopi*, said that the manufacturer of the pinisi ship first made a mutual agreement between the entrepreneur as the employer and the *panrita lopi* as the worker. The cooperation agreement between the entrepreneur and the *lopi* committee in Bontobahari Subdistrict, Bulukumba Regency, is generally carried out in a familial manner, where they already know each other, in fact, they are generally used to working together in the manufacture of pinisi boats.

Therefore, the cooperation contract between employers and workers (*panrita lopi*) is carried out by deliberation and consensus. *Panrita lopi* shows that the amount of labor used to work on a pinisi ship, is very dependent on the size of the ship to be worked on and the length of time it takes to complete the ship. Generally, the larger the time that will be done, the amount of labor used is also quite large.

3) Checking of raw materials in warehouse

After the cooperation agreement contract has been signed by both parties, the inventory of raw materials in the form of wood in the yard or in the warehouse is checked. If it is deemed that the existing wood supply is insufficient, then an order (order) of wood will be immediately placed in Southeast Sulawesi, Central Sulawesi, or Kalimantan. Panrita Lopi said that so far, there has been no problem with bringing in wood from outside South Sulawesi. Abdullah further said that based on his experience so far, he has never experienced any difficulties or obstacles when ordering wood from other regions. The supply of raw materials there (Southeast Sulawesi, Central Sulawesi, and Kalimantan) is sufficient. The proof is, every time you make a request for ironwood, the request comes on time and the amount is as requested.

Another opinion is Panrita Lopi, who said, often faced with wood supply constraints, the wood stock was often empty. Not because the supply of wood raw materials has run out in the area of origin, but because of other factors, such as the rainy season, big waves, and sometimes paperwork on the roads by officers. Timber often arrives late due to weather constraints, especially in the rainy season, no workers are cutting wood, or the waves are big, so boat owners are not brave enough to go to sea.

B. Stages of Lunas Cutting

The Lunas are the most important, fundamental, and most important part of the construction of the pinisi boat because it is the basic wood or foundation and the main building of the pinisi boat. The Lunas are made of large blocks of ironwood measuring about 40×40 cm or 50×50 cm. Ironwood has a strong resistance to changes in temperature, humidity, and the influence of seawater. Its' hard and heavy nature makes this wood the nickname ironwood because it is very strong, hard, and resilient, not easily weathered, and resistant to water. Thus, this wood will not change its shape such as warping or breaking under any conditions.

After the lunas have been cut, proceed with the preparation of the connection. There are two kinds of splicing techniques, namely the lasso technique (connection in) and the bridge technique (stack technique). To strengthen the connection, wooden or iron pegs are used as bolts. The lunas are located at the bottom of the shipbuilding.



Fig. 1. Cutting of the Lunas by Panrita Lopi.

C. The Stage of Making the Boat Hull

The stage of making the hull of the boat consists of 3 stages, namely, wall installation, frame installation, and floor installation.

1) Wall mounting

After the keel is ready, the next step is to make the hull or the walls of the ship, which is usually called the hull. At the stage of working on the hull of the boat, Panrita Lopi installs the baseboard. The thickness of the board differs from one ship to another. The boards at the bottom must be thicker than the boards above. The top board is installed after completing the installation of the packer, and during the initial installation of the cage (first board) the boards are connected with pins and each pin is 15-20 cm apart. The installation of this pinisi ship wall is a determinant of whether or not a ship is made. Therefore, the installation of the wall takes precedence over the frame because it is easier to attach pegs (bolts from wood) and is neater and stronger. Of course, the structure of the boards that are installed must be neatly arranged and the thickness of the wood is getting thinner and thinner. Panrita lopi in charge of this section must be more skilled and experienced.

2) Frame installation

Panrita lopi, agree and says that the pinisi ship will be more sturdy, strong, and durable if you prioritize the installation of wall boards over the installation of the frame. Because the installation of wall boards will be easier, neater, stronger, and more gripping, as well as easier installation of pegs (a kind of nail made of kandole wood). After completing the wall installation, then the installation of frame. But for ship workers on the island of Java and other areas, it is actually the framework first and then the installation of walls.

Panrita lopi, said, to make a strong pinisi ship, the wooden arch for the frame must be exactly close to the ship's wall. To adjust the arch of the frame to the wall, it is necessary to burn wood to sort the wood so that the arch is properly attached to the wall. To do the burning requires special skills so that the quality of the wood does not decrease because if you are not careful in burning it can reduce the quality of the wood.

3) Deck making (floor)

After completing the installation of walls and frames, the next job is to make the deck (floor). The materials used in this stage of making the deck are boards, beams, and pegs. Before installing the floorboards, the beams are first installed as support and used as a place to install the boards. This part of the deck is usually called the Deck. The deck is waterproof wooden planks arranged side by side and resting on the ribs of the ship, the gaps of the boards are filled with waterproof fiber and bonded with resin.

Panrita lopi said that to make a pinisi boat floor, you could use teak wood, but it would be better if you used ironwood. This ironwood is strong, durable, and water-resistant. To make a yacht the whole wood used is from the best wood so that the boat is produced the best. We must maintain quality. The main deck is above, while the base deck is below. If there is a deck between the two decks, it is called an intermediate deck.



Fig. 2. The stage of working on the floor of the pinisi boat (Researcher is on the floor of the ship).

D. Pinisi Boat Room Work

The results of an interview with Panrita lopi, a pinisi yacht entrepreneur in Bulukumba, explained that after the hull of the pinisi ship has been completed on land for approximately one year, generally, ships with a capacity of 300 tons and above are then lowered into the sea to work on the interior of the rooms on the ship. This interior work takes almost the same time as the time of making the ship's hull, which is 6 months to a year on the sea

Answering the researcher's question about the reason why the work of making the pinisi cruise ship is carried out partly on land and partly at sea, Andi Azwar said, if the shipbuilding is completed 100% on land including the interior of the ship's room, then the ship becomes heavier, making it difficult to push into the sea. can even cause damage to body parts. Therefore, to make the boat easier to push, safe, and smooth, after the hull of the pinisi ship is finished on land, it is then pushed into the sea and then the interior of the room is done.

E. The Stage of Working on The Mast and Sail of The Pinisi Boat

After the body and frame of the boat are finished, the next job is to install the poles and sails. Pinisi boats usually use two large sails called sombala. One screen is attached to the front. This screen measures about 200 square meters. Meanwhile, the other screen is located further back with a size of about 125 square meters. Above each large screen, there is a triangular-shaped screen called the diserere. In addition to the main screen, the bow is equipped with three auxiliary screens which are also triangular.



Fig. 3. Pinisi Boat Sail.

Some parts on the mast of the pinisi boat are as follows; Anjong (balancing triangle), which is at the front of the Sombala (main sail) ship, which is large in size up to 200 meters. Without Sere (small sail) triangular shape is on each main pole. Cocoro pantara (front assist screen). Cocoro tangga (middle auxiliary screen), and tarengke (back screen).

Installation of new sails is carried out after the boat has floated in the sea. Panrita lopi said that the way of installing the sail on each mast of the boat needs attention, both on the main mast and the auxiliary mast, it is necessary to maintain a balance on each mast to be installed. Then the type of ties and knots used as well as the location of the knots and ties used should receive attention by the workers.

The architects of the pinisi boat have always designed the pinisi construction very carefully. Each component is calculated in number and size even without standard measuring tools according to the capacity of the boat to be made. Furthermore, it is formed and named according to its position in the construction of the boat. This is what is very amazing for people from abroad who witnessed the process of making pinisi boats. This ancestral cultural heritage with the characteristics of the two poles and seven sails is the culmination of a process of making that is graceful and mighty in navigating the vast ocean. Panrita lopi says that the two main masts are based on 2 sentences of the creed and the seven sails are the sum of Surah Al-Fatihah.

F. Pinisi Boat Painting

After the body and mast are completed, the next step is painting the boat. Painting activities are very important considering that the quality of painting greatly determines the durability of the ship at sea. Therefore, it is necessary to pay attention to the main raw materials in terms of type, quantity, and quality, as the tools used by workers on each part of the boat that need to be painted such as brushes and dico tools. Likewise with favorable weather conditions, namely the weather in the hot sun.

Fishing boat entrepreneurs said that in order to present a neat, beautiful, and attractive face and appearance, the paint color and type of paint used, including painters who are proficient and expert in painting ships, are very much determined. The paint that is usually used is the Avian brand to make the boat look beautiful and strong. In order to make fishing boats, his party uses Avian brand paint mixed with glue, so that the wood of the boat walls does not eat water fleas.

G. Installation Stage of Pinisi Boat Engine and Steering

Today, pinisi boats are equipped with propulsion engines, like other modern ships. Therefore, it is the lopi committee and machinists who must carry out the installation of the engine including the installation of other engine parts such as propellers, exhaust, gas, and others, to avoid incorrect installation or improper installation.

Before installing the engine, Panrita lopi can prepare the ship's engine foundation that fits its size, namely the width of the engine leg, length, and height. The size of the engine must be known in advance so that shipbuilders can make a harmonious engine foundation. For this reason, the ship owner must already know the type of engine to be used, namely the specifications, the shape and type of the engine and the size of the propeller to be used. The information is

given to the shipbuilder, in order to place the engine foundation correctly and permanently. Panrita lopi said that communication between ship owners and shipbuilders is the most important thing to pay attention to, especially in the technique of installing ship engines. After the engine base is steady and stable, the next step is to determine the propeller axis hole.

H. Pinisi Boat Launch

Before the pinisi is launched into the sea, there is a ceremony led by the courtier. If the pinisi to be launched weighs less than 100 tons, the animal being sacrificed is a goat. However, if it weighs more than 100 tons, then the victim is a cow. After the ceremony is over, the boat is pulled by the sahi and the prospective sahi head to the sea.

Every time a pinisi ship launches, it always involves a lot of manpower, some pushing, some pulling, and some giving commands. The person who gives the command is called *Appara tuju*. The launch event was lively by the shouts of the pushers and pulls simultaneously at the command of the destination apparatus. The spirit of mutual cooperation by the community for the launch of the pinisi ship (*Panyorong lopi*) looks lively and lively. Moreover, the launch event was accompanied by a ritual event accompanied by a meal together.

With today's technological advances Panrita lopi said, the workforce involved in launching pinisi ships is less than in the past. Currently, there are only twenty people enough to launch the boat into the sea with the help of a pulley placed on the left and right.

IV. CONCLUSION

The pinisi boat is a sailboat that is the pride of the people of South Sulawesi Province. The process of making pinisi boats in Bontobahari Subdistrict, Bulukumba Regency, can be divided into eight stages, starting from the stages: (1) preparation, including purchase contracts with consumers (buyers), contracts with labor (*panrita lopi*), and preparation of material needs, (2) the work of the keel, (3) the body of the boat which includes; installation of boat walls, installation of frames, and making the deck (boat floor), (4) Work on the pinisi boat room, (5) work on the sails and sails of the pinisi boat, (6) painting the pinisi boat, (7) installation of the engine and rudder of the pinisi boat, and (8) Pinisi boat launching.

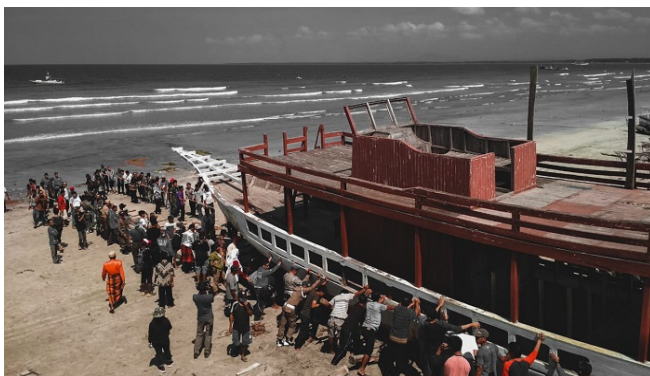


Fig. 4. Pinisi Boat Launching Stage.

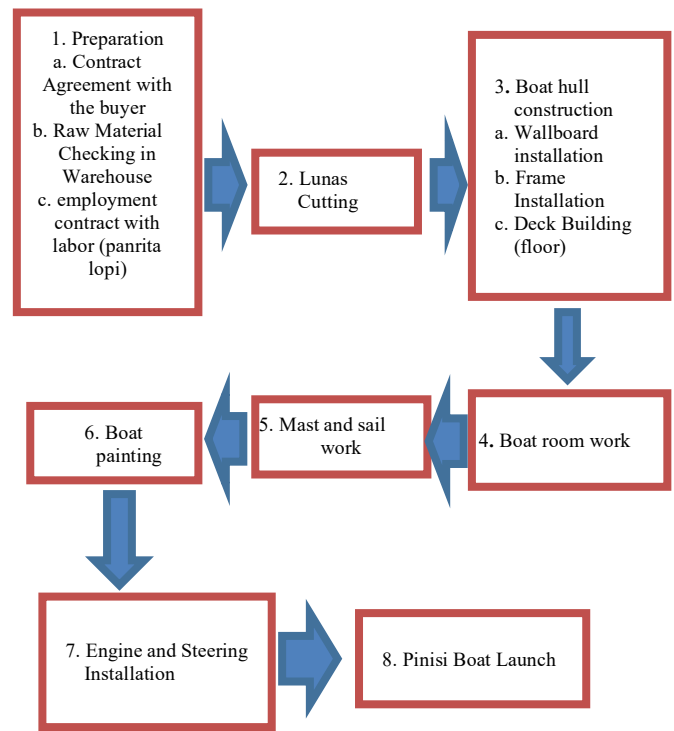


Fig. 5. Pinisi Boat Production Stages.

V. RECOMMENDATION

The pinisi boat as a cultural heritage of the archipelago, where UNESCO decided that the art of making pinisi boats from the province of South Sulawesi was selected as intangible cultural heritage (Intangible Cultural of Humanity). Therefore, the preservation of the production of pinisi boats in Bontobahari District needs serious attention from the government, both by the central government and local governments.

The process of making a pinisi boat in Bontobahari District, Bulukumba Regency, reflects the social and cultural values of daily life, namely working together, working hard, beauty, and respect for the natural environment. The technique of making Pinisi boats is also very concerned with accuracy from the technical and navigational points of view. Therefore, the regional and central governments need to provide support to pinisi boat entrepreneurs both in terms of capital and in terms of licensing.

To support tourism promotion launched by local and central governments, traditional ceremonies related to the manufacture of pinisi boats need to be preserved, by prioritizing Islamic religious values adopted by entrepreneurs and *panrita lopi* in Bontobahari District, Bulukumba Regency.

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