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FRP Fishing Boat Construction in Nagapattinam Coast, Tamil Nadu

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Abstract

FRP (Fibre reinforced plastic) fishing boat is vital role involved in small scale fisheries sector. The construction of FRP boats needs well expertise people make better design in right manner. Needed some technical updates still get better design aspects making of these boats; and also unavailability of wood materials, maintenance of wooden boat cost is higher reason behind that switch over to FRP boats. For time taking for preparing the each FRP boats is 4-7 days. For mold preparation 3-4 days and setting the deck process it will take another 2-3 days. Each yard has making 7-10 no. of boats per monthly. Nearly 5-12 years experienced labours are involved in making of FRP boats. Generally 3 models are practiced in the coastal districts. Fishermen are much interested converted from traditional crafts to FRP boats due to light weight, comfort handling and lesser making cost, cheaper maintenance cost. This article will gives better idea about different process involved for making of FRP fishing boat.

Introduction

Tamil Nadu is having 1,076 km long shoreline and 41,412 sq. km of mainland rack region with an Exclusive Economic Zone (EEZ) of 1.9 Lakh sq. km, adding to 5.21 Lakh huge loads of marine fish creation. This backings the work of 10.48 Lakh marine fishers. There are 5,806 motorized and 41,652 customary fishing makes which are effectively operated. There are 591 fishing villages and 362 fish landing Centres, Nagapattinam District has the 2nd longest coastal length of 187.9 Km in the state. A total of 339 non-motorized crafts, 5,636 motorized crafts and 1,075 mechanical crafts are involved in coastal fishing. Earlier days 2004, Tsunami disaster time tremendous changes happened wood to FRP boats construction. After Gaja cyclone completely traditional wooden boat converted to FRP construction due to that light weight, easy operation, easy handling, repair and maintenance cost is cheaper to wood. This article will give detailed idea about the process involved for making the FRP boat construction. The fishing makes are either produced using wood (secured locally and customarily utilized for making fishing boats) or Fiber Reinforced Plastic (FRP). Usually 29 ft, 32 ft and 34 ft sizes of the boats are practiced in this district (Biro, 2015).

The FRP fishing boats in demand at the Nagapattinam yard have the following dimensions. Three models are as follows.

Model 1: Length 29 ft, breadth 6.5 ft, height 3 ft

Model 2: Length 32 ft, breadth 7 ft, height 3.5 ft

Model 3: Length 34 ft, breadth 8 ft, height 3.5 ft.

The expenditure on materials and labour for making FRP boats is as follows:

Mat - 30.0%,

- Resin - 35.0%,
- Pigment - 3.0%,
- Gelcoat - 6.0%,
- Foam - 6.0%,
- Accessories - 5.0%,
- Catalyst and Cobalt - 5.0%, and
- Labour - 10.0%

Current Status of FRP Boat Construction in Nagapattinam District

FRP Boats are nowadays everywhere converted from traditional type crafts in Tamil Nadu. The fishermen concern easily handling, cleaning and maintenance work comparably better to replacing the traditional crafts. Further, used for loading and unloading of fishes to the market better time saving. Labour cost of mat applicator Rs. 850.00 head and supporting labour Rs. 550.00 head with working duration of 8 hrs. The 29 ft, 32 ft and 34 ft FRP boats are constructed and making cost is Rs. 2,20,000.00, Rs. 2,60,000.00 and Rs. 2,80,000.00 respectively. The boat shelf life is 8-10 years. For taking time for preparing the each FRP boats is 4-6 days. Each yard has making monthly 7-10 no. of boats. Nearly 5-12 years experienced labours are involved in making of FRP boats (Arif et al., 2020). Nagapattinam to Nagoor area, the familiar of FRP boats yards are Gowtham fibres, Vedha fibres, Raja fibres and Amirtha fibres also Veilankanni cheruthur fishing village having one more FRP boat making yard.

Components

- Deck Mold (Upper) – It is also known as Male mold.
- Hull Mold (Lower) – It is also known as Female mold.
- Wax – Purpose of wax used to remove the dust applies for 3 coats.
- PVA – its gel mixes with water then apply and used to release the mat from the mold.
- Gel – used for easy binding. Choose the color bottom, centre & top section based on fishermen preference. Cobalt mixed with gel coating used drying purpose (Anmarkrud, 2009).

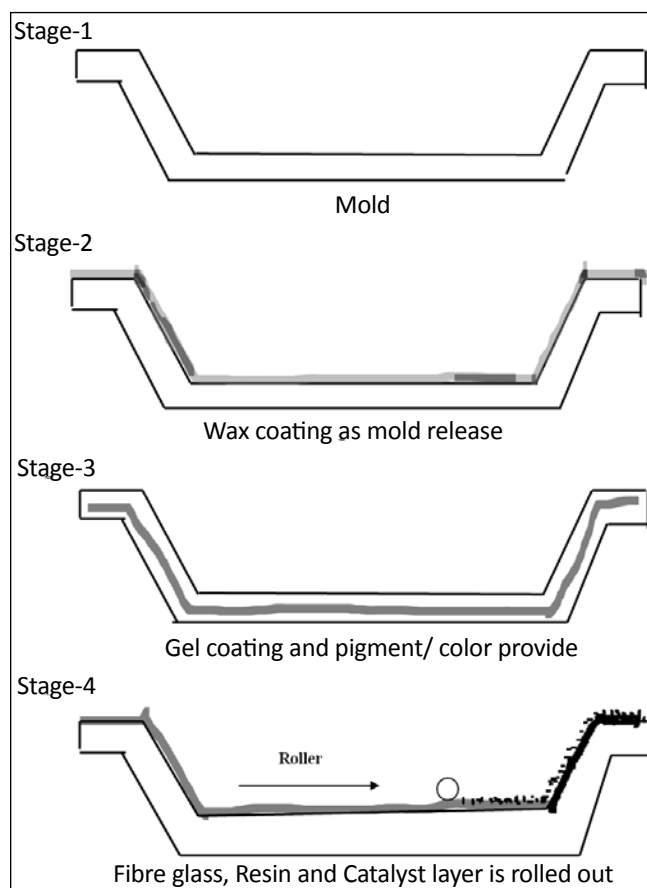
Fibremat Layers

- Chopped strand mat (CSM) – Two layers.
- Woven roving – one layer (Two Layer-Based on requirement).
- CSM - Chopped strand mat - Two layers.
- FRP boats are made only with the help of mold. Usually 5 to 6 fibre mat layers are used to make the boat.
- Chalk powder is used for tight binding of the two mats and the binding, drying process is done with the help of catalyst and accelerator,

- GP resin, chalk powder, catalyst and accelerator to bind the deck and the hull. (Catalyst – Methyl ketone peroxide).

Procedure for Making FRP Boat Construction

- For making FRP boats, initially molds have to be prepared.
- Wax is usually applied over the mold which aids in easy release of mat.
- Gel coat is applied over the wax coating, then add the pigment to provide colour.
- Fibre glass (CSM), resin and catalyst in applied in layers and rolled out. The deck is made up of 6 layers (Biro, 2016). The layers are bound with the help of chalk powder, catalyst and accelerator.
- The ribs are made with the help of mold and are fixed in the deck with chalk powder, accelerator and resin using some wooden blank structures (Vanghu kaal or Thadakulipalakai) used to makes deck proper fitting for strengthening. This is only used for hull structure not deck structure.
- After drying the parts are removed from the mold and pipes are fixed between ribs and then the excess material is trimmed. ¼, ¾ inch of 3 steel GI pipes are usually fitted. It takes about 1-2 days for drying and finally it is ready for assemblage.



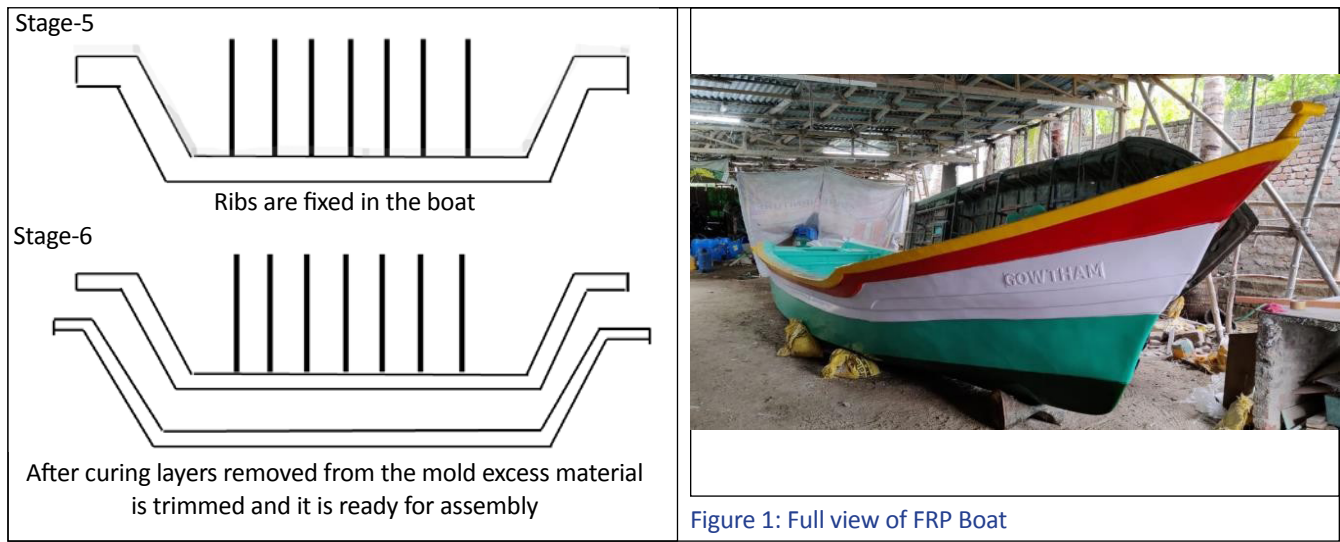


Figure 2: Materials used for making of FRP Boat

Conclusion

The procurement of raw materials for making FRP boats from Coimbatore and Chennai. Better district wise availability of raw materials for making FRP boats it will reduce the transport charges. State fisheries department will consider the subsidy scheme for the small scale fishermen for buying the FRP boats for them livelihoods. Fuel consumption for operating FRP boats comparably lesser than mechanized vessel. Each yard has making 7-10 no. of boats per monthly during the peak, after September month 3 no. of boats per month this is due to based on catches. FRP boats order from

fishermen based on the catches, peak fishing season of fish catch march to September. Fishermen are willing to give more order making FRP boats for switchover from traditional crafts due to light weight, comfort handling. The next to mechanized fishing vessels small scale fishermen more interested to buying the FRP boats in this Coast.

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