DESIGN OF A SAGO LOG TRANSPORT VESSEL FOR THE MERANTI ISLANDS REGION

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ABSTRACT

The Meranti Islands Regency, located in Riau Province, is one of Indonesia's largest sago-producing regions, with an annual output reaching hundreds of thousands of tons. However, the distribution of sago logs (tual sagu) from plantations to processing centers and markets still relies on traditional methods such as rafts, which are inefficient, high-risk, time-consuming, and limited in carrying capacity. This study aims to design a dedicated sago log carrier vessel based on the Landing Craft Tank (LCT) type, optimized for the shallow and narrow waters of Kepulauan Meranti. The design process applied the Parent Design Approach with linear regression analysis of 12 comparable vessels. The resulting main dimensions are: length 32.02 m, breadth 6.95 m, depth 2.76 m, and draft 1.765 m. The design stages included hydrostatic and stability analysis, resistance and powering calculations, as well as the development of the lines plan and general arrangement. The proposed vessel is capable of transporting 362.5 tons of sago logs at an operational speed of 11.5 knots. Twin CAT-C7.1 engines, each producing 320 HP (total 640 HP), provide sufficient power to overcome a total resistance of 68.9 kN, while the stability evaluation complies with IMO Code A.749(18).

Keywords*: ship design, sago logs, Meranti Islands, marine transportation, vessel planning*