MODELING OF SHIP DISMANTLED SALES DECISION CONSIDERING REUSED COMPONENTS

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ABSTRACT

Ship dismantling industries provide raw materials for iron, steel and other metal industries. Ship components that are in fine condition can be reused, the damage components can be repaired or remanufactured so that it can be re-used. While the other components in worst condition are definitely recycled. There are a lot of previous research on ship dismantling, but most of them are discussed about health and safety aspects of ship dismantling process. They also discuss the bad impacts of ship breaking process because of hazardous material waste generated by dismantling activities.

A few number of research discussed about reverse logistics of ship dismantled materials. One of them only consider iron and steel. Whereas in fact, the materials resulted from ship dismantling not only in the scrap metal from, but there are other components such as anchors, chains, machinery and others. The sales of components for recycle, reuse, repair or remanufacture can increase profits for dismantler as well as providing a positive impact on the environment by reducing the energy required to manufacture new products. Still, there are a number of energy used to process recycle, reuse, repair or remanufacture those affecting environmental sustainability but not more than produce new component.

In this study, ship dismantling business profit optimization will be develop respect to components sales decisions of ship dismantling and the charges that are appeared on dismantling activities and sales process. Numerical experiments carried out by change some parameters to determine the effect on profit optimization. The results of numerical experiments showed that poor components, declining in component prices, the greater inventory cost, loan capital and rates make profit declined.

Keyword: Ship dismantling industry, profit optimization, reverse logistics.