

ABSTRACT

In this research, a custom design of Material Handling Equipment (MHE) is done by considering the constraints of product and user needs in a company of the largest tea producer in Indonesia. The MHE used as the object of study is the type of hand-truck or trolley. The trolley is used as a wooden fuel carrier to supply the fuel needs of the tumble dryer machine, the trolley is operated for 8 hours and is driven by 3 workers due to the load conditions at each transport process, this is due to the average wood fuel requirement Tea dryers every day is 49 m³ while the trolley is used only one unit and cause the supply of firewood is not optimal. However, based on field observations, there have been problems with existing MHE designs that are unreliable in carrying out their main function as wood-burning vehicles, and from the other hand, MHE is not compatible with user needs, besides, MHE also has constraints on aspects Ergonomic. Therefore, in this study designed a MHE concept that can answer the existing trolleys constraints and according to user needs based on functional analysis of the existing trolley design using Reverse Engineering approach because the existing product there are still some sub-functions that can still be considered for use but must be reviewed first. It is expected that with this trolley repair the process of transporting firewood in the spraying chamber will be more optimal and the trolley design used will be more reliable. Then based on the results of research, has been obtained the appropriate design and able to answer the user needs and constraints in PT.XYZ this is proven by the presentation of trolley reliability increase of 64%, the convenience of trolley use by 33%, and the performance of trolleys by 39%.

Key word: *User Needs, Customized-design, Material Handling Equipment, Wooden Fuel, Reverse Engineering & Redesign*