ABSTRACT

Reclamation project does not stop when the new land formed after the filling work finish. After the new land is made, dredging works has to be done to make sure that there is no any fill material beyond the agreed boundary by making a steeper slope than the natural slope of the reclaimed land. There is several equipment can be used in the offshore dredging works. In this research, there are 3 dredgers chosen to be analyzed in term of cost, time, and quality. Those dredgers are Cutter Suction Dredger (CSD), modified sand pump, and long-arm excavator. The purpose of this research is to give a method for the board of management on how to choose the most suitable dredger in term of cost, time, and quality. The analysis of the cost and time is based on the productivity of each dredger per day. This productivity rate will be used to calculate the total time of each dredger needs to finish the work of one island. The total time needed to complete the work will also determine the time when the board of management can receive income from the house sold on the reclamation island, thus it will affect the project cost in term of Net Present Value (NPV). As for the quality, it will be analyzed base on how close the dredging result compare to the given design. To choose the best dredger based on project interest, each dredger will be scored based on its performance in every term of cost, time, and quality in the range of 0 – 10. Score also will be given to the term of cost, time, and quality based on the project interests. Based on the multiplication of those scores, the dredger with the highest score is the best equipment in term of cost, time, and quality, and also based on the project interests. Matrix of the total dredger score sensitivity can be used to reduce the subjectivity in scoring by getting more input for the dredger performance score from the site supervisor, and more input for the terms score as each board of management has their own interests in term of cost, time, and quality.

Key words: reclamation, dredging, cost, quality, time, matrix.