ABSTRACT

Distribution is an important thing in the supply chain because distribution is the activity of moving products from suppliers to get to customers. One of the activities tied to distribution is transportation. Transportation activities will incur transportation costs, these costs arise due to the movement from one location to another. The costs incurred can affect the price of the product and the profits to be obtained by the company. PT XYZ is a company engaged in the paper industry located in Bekasi, West Java. PT XYZ requests from all over Indonesia, PT XYZ divides distribution activities into 2 categories namely Jabodetabek and outside Jabodetabek. In delivering deliveries to the Jabodetabek category, PT XYZ uses a vehicle owned by PT XYZ, while for the outside Jabodetabek category PT XYZ uses an expedition service for delivery. PT XYZ has problems with transportation costs in the Jabodetabek category namely transportation costs that exceed the predetermined target costing. In this final assignment will design a route that will be used in product distribution which aims to minimize transportation costs. This final assignment will design a route that will be used in product distribution which aims to minimize transportation costs, the characteristics of the problems experienced by PT XYZ are included in the vehicle routing problem (VRP) problem with the characteristics of the time window owned by different customers. In this final assignment, mixed-integer linear programming (MILP) method is used in designing the proposed route, where the model can reduce travel distance and transportation costs. The result of this final assignment is that the proposed route is designed to reduce transportation costs by 22.72% from the existing condition. The transportation cost generated by the proposed route is 16% lower than the transportation cost target set by the company.

Keywords—***Distribution, Vehicle Routing Problem, Time Window. Mixed-Integer Linear Programming***