ABSTRACT

PT XYZ is a chemical industrial company that produces various kinds of paint with a variant type, size, and color. PT XZY have two Distribution Center located in two different areas, Bandung and Surabaya. Distribution Center Bandung distribute the product directly to the building store listed as regulars companies spread in some areas of distribution, one of which is Cijerah. Transport is one of the elements that contribute substantially to the total cost of distribution. PT XYZ is often delayed delivery. This raises the company should be a greater expense. The research aims to minimize the total cost of transportation incurred by PT XYZ so that the company can optimize its distribution system.

The problems that occurred in PT XYZ is a common problem in the field of transport and generally resolved using VRP approach with some characteristcs of VRP, there are VRP with Heterogeneous Fixed Fleet, VRP with Multiple Product, and VRP with Time Windows. These characteristics indicate that the VRP happened in PT XYZ is quite complex so this is resolved by metaheuristic approach namely Genetic Algorithms. The author uses the Nearest Neighbour algorithm to generate the initial solution.

VRP approach using Genetic Algorithms were able to reduce total mileage required is 10.38 % of the total distance and reduce the total transportation cost of 5.017 % compared to the existing condition.

Keywords *: Transportation, VRP, Heterogeneous Fleet, Multiple Product, Time Window, Nearest Neighbour Algorithm, Genetic Algorithm.*