This paper presents chance constrained multi-objective capacitated transportation problem based on fuzzy goal programming problem. Generally, in transportation problem the capacity of each origin and the demand of each destination are random in nature. The inequality constraints representing supplies and demands are probabilistically described. In many real situations, there are capacity restrictions on units of commodities which are shipped from different sources to different destinations. In the model formulation, supply and demand constraints are converted into equivalent deterministic forms. Then, we define the fuzzy goal levels of the objective functions. The fuzzy objective goals are then characterized by the associated membership functions. In the solution process, two fuzzy goal programming models are considered by minimizing negative deviational variables to obtain compromise solution. Distance function is used in order to obtain the most compromise optimal solution. In order to demonstrate the effectiveness of the proposed approach, an illustrative example of chance constrained multi-objective capacitated transportation problem is solved.

Index Terms

Computer Science Algorithms

Keywords

Fuzzy Goal Programming Chance Constrained Programming Transportation Problem Capacitated Transportation Problem Randomness Membership Function Multi Objective Decision Making