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Title: **A bi-objective optimization model for a bimodal network of oil transportation**

Abstract:
Transportation of oil requires attention for a variety of reasons, the most important being the external costs caused by adverse events. These adverse events affect not only the environment costs but also the societal costs. In this paper, a bi-objective optimization model for a bimodal network of oil transportation is presented. The paper discusses a mathematical model that takes into account two main decision criteria, namely cost and safety. A linear programming model is presented, in which the focus is laid on the different elements that affect the performance of the bi-modal transportation chain of oil. The disturbing elements that are considered include technical failures, road conditions and vandalism acts. Thus, in this study, it is investigated how the bimodal network must be designed to avoid adverse effects caused by these disturbing elements. The goal of the approach is to maximize safety and minimize costs. Data from a real life example (i.e. the Tunisian national oil company) will be used to calibrate the model.

Key words: optimization, oil transportation, bimodal network, bi-objective model.