ROUTING SYSTEM FOR INFECTIOUS HEALTHCARE-WASTE TRANSPORTATION IN TUNISIA: A CASE STUDY

Wafik Hachicha¹,²*, Mariam Mellouli², Mahdi Khemakhem², Habib Chabchoub²

¹University of Sfax, Unit of Mechanic, Modelling and Production (U2MP), Engineering School of Sfax, B.P. 1173, 3038 Sfax, Tunisia
²University of Sfax, Higher Institute of Industrial Management in Sfax, B.P. 954, 3018 Sfax, Tunisia

Abstract

Healthcare waste management is one of the most important environmental problems in the world and particularly in Tunisia, because of the potential environmental hazards and public health risks. The collection of infectious healthcare waste is a highly visible and important service that involves large expenditures. This study discusses the off-site transport problem of infectious healthcare waste from the 12 hospitals in the governorate of Sfax (Tunisia) to a planned steam sterilization disposal centre. This problem of transportation is modelled as capacitated vehicle routing problem (CVRP). Experimental results are reported for the proposed real-life case study from using the solver CPLEX 9.0 software as an interactive optimizer tool. The robust proposed solution method can be considered to be important for a licensed company or for the Sfax municipality for healthcare-wastes transportation system and for CVRP practitioners.

Key words: capacitated vehicle routing, exact optimization, infectious healthcare waste, off-site transport

Received: September, 2011; Revised final: April, 2012; Accepted: April, 2012

* Author to whom all correspondence should be addressed: E-mail: wafik_hachicha@yahoo.fr; Phone: +216 98 608 865; Fax: +216 74847 508