

Rating Risk Factors Related to Dangerous Goods Transportation and Selecting an Ideal Warehouse Location

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EXECUTIVE SUMMARY

Considering the environment and human life, the importance of dangerous goods transportation should be carefully considered. Preventing damages during this transportation, anticipating the dangers, and minimizing the risks are vital components for businesses, human life, and the environment. Therefore, reducing/minimizing risks in dangerous goods transportation is a critical element of vital importance. This chapter is aimed to rate the risk factors related to dangerous goods transportation and select the most ideal warehouse locations due to their importance for human and environmental health. There are a number of factors for that purpose. There are six provinces in the Eastern Black Sea region having the strategic function and structure. According to the decision makers' views and judgments, three provinces are determined in terms of dangerous goods transportation. Picture fuzzy sets-based AHP-TOPSIS methodology was used to analyze the problem of dangerous goods transportation and the most ideal warehouse location selection.

INTRODUCTION

The emergence, in December 2019, of acute respiratory disease, called Coronavirus-2 and declared a pandemic by the World Health Organization (WHO) in March 2020, sent us into a state of unprecedented global demand (Acar, 2020). During the pandemic, many businesses faced problems such as lack of raw material inventory, an insufficient workforce, lack of working capital, and increased freight rates. The pandemic negatively impacted the efficiency of transportation and port unloading, which led to a sharp decline in export orders and almost ran the global export trade of industrial products to a halt. The increase in the risk due to the pandemic also brought uncertainty to companies regarding the maintenance of production and cash flow. The decrease in total factor productivity caused by the closure of businesses and their production played an important role in reducing the average production of the sector by 1.78%. The decline in labor productivity caused by the gradual resumption of work has reduced the industry's average output by 0.55% (WHO, 2020)

However, even during the pandemic, the rapid increasing of industrialization with the globalizing world has increased dependence on dangerous substances, and the use of these substances has become widespread. Using dangerous substances became compulsory in almost all areas of our lives and has become one of the issues to be considered. Dangerous goods have usually transported by road; it consists of humans, animals, the environment, in short, substances that threaten the living space. These substances' effects are sudden and emerge as the safety of life and property and environmental disasters. It requires adequate transportation and risk management understanding in the transportation of these substances (Korucuk, 2018).

Work and the nature of the workplace have changed drastically during the pandemic due to the changes experienced in the workforce and the labor market, new forms of employment. This poses new risks and challenges for the safety and health of workers. These must be anticipated and addressed to ensure safe and healthy workplaces in the future. Risks should be addressed in a timely and effective manner, especially in global epidemic situations, and the emerging occupational health and safety risks should be supported with reliable, high-quality data (Prem et al., 2020).

Because in particular, to positioning such materials separately; the detailing of the relocation processes, ranging from the scope and extent of the content, arise from the specific transports that concern many different stakeholders to the harmony between operations and political unions.

A hazardous substance is a concept; They are substances that can endanger general safety, order, life, and society due to their composition (Korucuk, 2018). Oggero et al. (2006),

hazardous materials have been defined as substances in solid, liquid, or gaseous form that may endanger or damage the environment and human safety as a result of

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