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Assessment of Occupational Health and Safety Risks in Disaster Logistics Operations: An Integrated Approach Based on the Example of the 2023 Kahramanmaraş Earthquakes

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Abstract – Disaster logistics is an extremely risky field of activity in terms of occupational health and safety (OHS) due to the operations carried out under time constraints, inadequate infrastructure, uncertainty and high physical-psychosocial stress. This study aims to evaluate the OSH risks encountered in humanitarian aid and disaster logistics operations carried out after the Kahramanmaraş-centered earthquakes that occurred on February 6, 2023, with a multidimensional and integrated approach. Within the scope of the study, temporary logistics centers established in the first 30 days in the disaster area, humanitarian aid transportation chain and field logistics processes were observed; critical risk factors causing the accident were determined. JSA (Job Safety Analysis) method was used in the risk analysis process; data were evaluated with frequency and distribution analysis via SPSS. According to the findings, the leading risks in disaster logistics operations are physical injuries (39%), vehicle and equipment-related accidents (24%), untrained volunteer participation (18%) and psychosocial stress (12%). In particular, lack of sufficient personal protective equipment (PPE), unplanned task distribution and long working hours have emerged as the main factors increasing OHS risks. When OHS practices are aligned with the ISO 45001 Occupational Health and Safety Management System, significant success can be achieved in preventing field accidents. In this context, it has been determined that accident rates are 22% lower in some logistics organizations that have made prior preparations and integrated ISO 45001 (e.g. Turkish Red Crescent). In addition, the Occupational Health and Safety Law No. 6331 in Turkey, AFAD Disaster Management Guide, and Sendai Disaster Risk Reduction Framework (2015–2030) have been examined and legal and institutional gaps specific to disaster environments have been discussed. As a result, OHS in disaster logistics operations is a multidimensional area that should be addressed not only during a crisis, but also in the pre-crisis preparation and post-crisis rehabilitation stages. This study proposes a strategic and sustainable framework for managing OHS risks in disaster logistics with an interdisciplinary and integrated analysis approach.

Keywords – Disaster Logistics, Occupational Health, Risk Analysis, ISO 45001, Field Safety