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Risk Evaluation of Airport Safety during Non-stop Construction Using Fuzzy Analytical Hierarchy Process and Bayesian Belief Network

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ABSTRACT

During the non-stop construction, risk analysis is essential to ensure airport safety. This study aims to perform risk evaluation of airport safety during the non-stop construction using both Fuzzy Analytical Hierarchy Process (F-AHP) and Bayesian Belief Network (BBN). Risk assessment of airport during non-stop construction involves four risk factors of personnel, equipment, environment, and management. F-AHP is utilized to rank impact of risk factors while BBN is implemented to assess probability of risk occurrence. The combination of F-AHP and BBN is implemented to identify the most significant risk. The results have revealed that environmental factor imposes the most significant influence on risk of airport safety during non-stop construction while equipment factor has the lowest impact on airport safety. The outcomes of this study allow decision makers to manage potential risk and improve airport safety during the non-stop construction.

Keywords:

Airport Safety, Risk evaluation, Fuzzy Analytic Hierarchy Process, Bayesian Belief Network.