CONSTRUCTION RISK IDENTIFICATION AND ANALYSIS USING FAILURE MODE AND EFFECT ANALYSIS (FMEA) METHOD AND FAULT TREE ANALYSIS (FTA) METHOD IN RING ROAD CONSTRUCTION PROJECT NAGREG V BANDUNG

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ABSTRACT

The construction process on the road project has a lot of uncertainty that leads into the risks. Risk is the cumulative effect of an uncertain chance event that affect the goals and objectives of the project. The impact of risk can affect productivity, achievement (performance), quality and budget of the project cost. The objective of this research were to indentify and analyze risks using two methods, the method of Failure Mode and Effect Analysis (FMEA) and Fault Tree Analysis method (FTA).

Identification activity starts from literature study and preliminary surveys. As the respondents were the Project Manager, Site Manager Engineering, Site Operational Manager, and a handle K3LM Ring Road Construction Project Nagreg V Bandung. Failure mode was indetified in each activities root cause of failure was analyzed using FTA and its effect was identified using FMEA. Output from FTA was probability value, while output from FMEA was effect from risks. Risk assessment was conducted by multiplying severity level and probability value to obtain the highest risk. Risk mitigation was a risk to highest risks.
Relevant risks were sliding, delay, cracking, collapse, loss of material, light does not turn on or off and file does not match the contract documents. Result from the study, they are sliding in land fill activity, sliding in land cut activity, sliding in casting slope, collapse in bonjong activity and delays in land fill activity. While mitigation that can be used is always watching the weather forecasts, use of experienced staff, providing safety devices themselves (APD) to workers, and shorten the distance of quarry land.

Keywords: Risk Identification, Risk analysis, Failure Mode and Effect Analysis, Fault Tree Analysis, Ring Road, Nagreg