

**THE USE OF AERIAL DRONE TECHNOLOGY FOR LANDSLIDE
INVESTIGATION IN NICKEL MINING PT. KLM**

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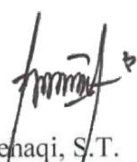


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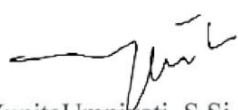
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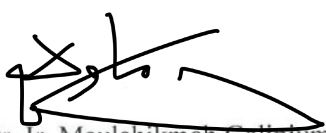
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ABSTRACT

THE USE OF AERIAL DRONE TECHNOLOGY FOR LANDSLIDE INVESTIGATION IN NICKEL MINING PT. KLM

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This research analyzes the application of drone technology in the assessment of landslides inside the nickel mining region of PT. KLM. The primary obstacles in gathering geotechnical data are challenging topography, landslide hazards, and the constraints of traditional survey techniques. This study employs the Six Sigma DMAIC (Define, Measure, Analyze, Improve, Control) framework to identify problems, gather and analyze drone data, and formulate landslide risk reduction solutions. Flight scenarios at elevations of 100 m, 150 m, and 200 m were executed, resulting in a map that reflects the capabilities of each scenario, including image resolution, collision risk, area coverage per photograph, area per flight, and optimal application. The 150 m flying altitude scenario was chosen based on the mapping results, given the provided parameters. Analysis of drone data with Real Time Kinematic (RTK) methods reveals an average variance of around 0.317 meters, signifying satisfactory accuracy. The research findings demonstrate that drone data can generate appropriate outputs, including high-resolution orthophotos, contour maps, and 3D models, for monitoring morphological alterations before and after landslides. In summary, the implementation of drone technology augments efficiency, boosts workplace safety, and elevates data quality for more efficient landslide risk management in the nickel mining industry.

Keywords : Drone technology, Landslide assessment, Nickel mining, Six Sigma DMAIC, Orthophoto and 3D modeling, Real Time Kinematic (RTK).

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DEDICATION

To My Super Wife, Ratnah Aryanti,
My Great Boy Nail, and My Wonderfull daughter Nayanika

My beloved parents :
Syatori & Sunenci And Tahya & Arsih



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