

ABSTRAK

Alat kerja ketinggian merupakan salah satu peralatan penting dalam mendukung aktivitas pekerjaan pada area dengan risiko jatuh, sehingga diperlukan proses monitoring dan pemeliharaan secara berkala untuk memastikan kelayakan penggunaannya. Pada PT Bima Energi Elevasi, proses pencatatan dan penilaian kondisi alat masih menghadapi kendala karena sebagian proses dilakukan secara manual sehingga dapat menyebabkan keterlambatan informasi dan penilaian yang kurang objektif. Penelitian ini bertujuan untuk merancang dan membangun sistem pendukung keputusan berbasis website yang dapat membantu proses monitoring serta menentukan kelayakan pemeliharaan alat kerja ketinggian menggunakan metode Fuzzy Tsukamoto. Metode ini digunakan untuk mengolah beberapa variabel penilaian, yaitu usia pakai, frekuensi penggunaan, kondisi fisik, dan riwayat beban alat sehingga menghasilkan keputusan kelayakan secara otomatis. Pengembangan sistem dilakukan menggunakan metode pengembangan perangkat lunak dengan tahapan analisis, perancangan, implementasi, dan pengujian. Hasil penelitian menunjukkan bahwa sistem yang dibangun mampu melakukan pengelolaan data alat, proses inspeksi, perhitungan kelayakan menggunakan metode Fuzzy Tsukamoto, serta menghasilkan rekomendasi status alat berdasarkan nilai perhitungan. Sistem ini dapat membantu pihak PT Bima Energi Elevasi dalam melakukan monitoring dan menentukan tindakan pemeliharaan alat kerja ketinggian secara lebih efektif, objektif, dan terukur.

Kata kunci: Sistem Pendukung Keputusan, Fuzzy Tsukamoto, Alat Kerja Ketinggian, Monitoring, Pemeliharaan.

ABSTRACT

Working at height equipment is one of the important tools used to support activities in high-risk work areas, especially those involving fall hazards. Therefore, regular monitoring and maintenance processes are required to ensure that the equipment remains safe and suitable for use. At PT Bima Energi Elevasi, the process of recording and assessing equipment conditions still faces several challenges because some activities are carried out manually, which may result in delayed information and less objective assessments. This research aims to design and develop a website-based decision support system to assist the monitoring process and determine the maintenance feasibility of working at height equipment using the Fuzzy Tsukamoto method. This method is applied to process several assessment variables, including equipment service life, usage frequency, physical condition, and load history, to produce an automated feasibility decision. The system development process consists of analysis, system design, implementation, and testing stages. The results of this research show that the developed system is capable of managing equipment data, recording inspection results, performing feasibility calculations using the Fuzzy Tsukamoto method, and generating equipment status recommendations based on calculation results. This system can assist PT Bima Energi Elevasi in monitoring and determining appropriate maintenance actions for working at height equipment more effectively, objectively, and measurably.

Keywords: Decision Support System, Fuzzy Tsukamoto, Working at Height Equipment, Monitoring, Maintenance.