



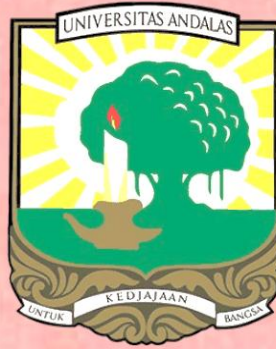
UNIVERSITAS ANDALAS

ANALISIS RISIKO *WILDLIFE HAZARD* DENGAN METODE *FAILURE MODE AND EFFECT ANALYSIS (FMEA)* PADA AREA *AIRSIDE* DI BANDARA INTERNASIONAL MINANGKABAU (BIM)

Oleh :

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FAKULTAS KESEHATAN MASYARAKAT
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**Diajukan Sebagai Pemenuhan Syarat Untuk Mendapatkan
Gelara Sarjana Kesehatan Masyarakat**

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ANALISIS RISIKO *WILDLIFE HAZARD* DENGAN METODE *FAILURE MODE AND EFFECT ANALYSIS* (FMEA) PADA AREA *AIRSIDE* DI BANDARA INTERNASIONAL MINANGKABAU (BIM)

xvi + 194 halaman, 53 tabel, 22 gambar, 6 lampiran

ABSTRAK

Tujuan Penelitian

Keberadaan satwa liar di area *airside* berpotensi menimbulkan gangguan terhadap keselamatan penerbangan. Bandara Internasional Minangkabau memiliki kondisi lingkungan hutan, rawa-rawa dan garis pantai yang menjadi ekosistem pendukung aktivitas satwa liar sehingga diperlukan analisis risiko *wildlife hazard* di area *airside* Bandara Internasional Minangkabau menggunakan metode *Failure mode and Effect Analysis* (FMEA).

Metode

Jenis penelitian kualitatif dengan pendekatan fenomenologi menggunakan metode analisis risiko FMEA. Dilaksanakan September 2025 - Februari 2026 di Bandara Internasional Minangkabau. Data dikumpulkan melalui wawancara mendalam, observasi lapangan, dan telaah dokumen dari 7 Informan dipilih secara *purposive*. Analisis data dilakukan melalui triangulasi sumber dan metode, kemudian dilakukan penilaian *severity*, *occurrence*, dan *detection* untuk memperoleh nilai *Risk Priority Number* (RPN)

Hasil

Hasil penelitian menunjukkan bahwa *failure mode* utama di area *airside* adalah keberadaan satwa burung dan darat seperti babi dan anjing berpotensi menimbulkan *bird strike* dan *runway incursion* yang dapat mengakibatkan trauma psikologis hingga *fatality* bagi penumpang dan kru. Zona dengan nilai RPN tertinggi berada di Zona B sekitar *middle marker* (4 MM) *Runway 33* dengan skor 76,55 yang dipengaruhi oleh tingginya kemunculan satwa, kondisi lingkungan, serta sistem deteksi yang masih bersifat manual.

Kesimpulan

Hasil analisis FMEA menunjukkan bahwa risiko *wildlife hazard* di area *airside* Bandara Internasional Minangkabau pada beberapa zona masih memerlukan pengendalian dengan nilai rata-rata RPN di atas 70,00. Diperlukan pengendalian berbasis risiko melalui pengelolaan lingkungan, penguatan infrastruktur, peningkatan sistem pemantauan, serta peningkatan kompetensi petugas guna menurunkan potensi gangguan keselamatan penerbangan.

Daftar Pustaka: 103 (2001-2026)

Kata Kunci : Analisis Risiko, Satwa Liar, FMEA, Keselamatan Penerbangan, WHM

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MUHAMMAD RAGHIB ATHA MAULANA, NIM. 22112130343

**WILDLIFE HAZARD RISK ANALYSIS USING FAILURE MODE AND
EFFECT ANALYSIS (FMEA) IN THE AIRSIDE AREA OF MINANGKABAU
INTERNATIONAL AIRPORT**

xvi + 194 pages, 53 tables, 22 pictures, 6 appendices

ABSTRACT

Objective

The presence of wildlife in the airside area poses a potential risk to aviation safety. Minangkabau International Airport has environmental conditions such as forests, wetlands, and coastal areas that support wildlife activities. Therefore, this study aimed to analyze wildlife hazard risks in the airside area of Minangkabau International Airport using the Failure mode and Effects Analysis (FMEA) method.

Methods

This study employed a qualitative phenomenological design using the Failure mode and Effect Analysis (FMEA) method. The research was conducted from September 2025 to February 2026 at Minangkabau International Airport. Data were collected through in-depth interviews, field observations, and document review involving seven purposively selected informants. Data analysis was conducted through source and method triangulation, followed by severity, occurrence, and detection assessment to obtain the Risk Priority Number (RPN).

Results

The results of the study showed that the main failure modes in the airside area were the presence of birds and terrestrial animals, such as wild boars and dogs, which had the potential to cause bird strikes and runway incursions. The zone with the highest RPN value was Zone B around the middle marker (4 MM) of Runway 33, with a score of 76.55, influenced by the high frequency of wildlife presence, surrounding environmental conditions, and a detection system that was still manually operated.

Conclusion

The FMEA analysis indicated that wildlife hazard risks in several airside zones of Minangkabau International Airport still required control, as reflected by average RPN values above 70.00. Risk-based control measures including environmental management, infrastructure strengthening, enhancement of monitoring systems, and improvement of personnel competency to reduce disturbances to safety aviation.

References : 103 (2001-2026)

Keywords : Risk Analysis, Wildlife hazard, FMEA, Aviation Safety, WHM