

ANALISIS NILAI KERUGIAN BANGUNAN
BERDASARKAN TINGKAT KERENTANAN FISIK BANGUNAN
TERHADAP TSUNAMI DI PANTAI SUWUK, KABUPATEN KEBUMEN

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INTISARI

Pantai Suwuk, Kabupaten Kebumen, merupakan wilayah pesisir selatan Pulau Jawa dengan tingkat bahaya tsunami yang tinggi, sehingga berimplikasi pada meningkatnya kerentanan fisik bangunan dan potensi kerugian ekonomi. Penelitian ini bertujuan untuk menganalisis tingkat kerentanan fisik bangunan terhadap tsunami menggunakan model Papathoma Tsunami Vulnerability Assessment (PTVA-4) serta mengestimasi kerugian bangunan berdasarkan tingkat kerentanan dan nilai ekonominya. Penelitian ini menggunakan pendekatan kuantitatif dengan metode skoring dan analisis spasial. Penilaian kerentanan dilakukan dengan mempertimbangkan parameter karakteristik bangunan, kondisi lingkungan sekitar, dan eksposur terhadap genangan tsunami, yang diintegrasikan dalam nilai *Relative Vulnerability Index* (RVI). Estimasi kerugian dihitung dengan menggabungkan nilai RVI dengan nilai ekonomi bangunan yang diperoleh dari Nilai Jual Objek Pajak (NJOP) dan luas bangunan. Data yang digunakan meliputi jenis penggunaan bangunan, luas bangunan, dan harga bangunan per meter persegi. Hasil penelitian menunjukkan bahwa tingkat kerentanan bangunan di Pantai Suwuk bervariasi dari rendah hingga tinggi, dengan distribusi sebanyak 30 bangunan berkategori rendah, 132 bangunan sedang, dan 60 bangunan tinggi. Total estimasi kerugian bangunan mencapai Rp701.066.400. Hasil ini mengindikasikan bahwa kawasan Pantai Suwuk memiliki potensi kerugian ekonomi yang signifikan akibat tsunami, sehingga diperlukan strategi mitigasi berbasis informasi kerentanan dan estimasi kerugian bangunan secara spasial untuk mendukung pengurangan risiko bencana.

Kata kunci: tsunami, kerentanan bangunan, PTVA-4, estimasi kerugian, Pantai Suwuk

*ANALYSIS OF BUILDING LOSS VALUE
BASED ON THE PHYSICAL VULNERABILITY LEVEL OF BUILDINGS
TO TSUNAMI AT SUWUK BEACH, KEBUMEN REGENCY*

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ABSTRACT

Suwuk Beach, located in Kebumen Regency along the southern coast of Java, is an area with a high level of tsunami hazard, which increases the physical vulnerability of buildings and the potential for economic losses. This study aims to analyze the physical vulnerability of buildings to tsunami hazards using the Papathoma Tsunami Vulnerability Assessment (PTVA-4) model and to estimate building losses based on vulnerability levels and economic value. A quantitative approach was applied using scoring methods and spatial analysis. Building vulnerability was assessed by considering parameters such as building characteristics, surrounding environmental conditions, and exposure to tsunami inundation, which were integrated into the Relative Vulnerability Index (RVI). Loss estimation was conducted by combining the RVI values with the economic value of buildings derived from property valuation (NJOP) and building area. The data used include building use type, building area, and building price per square meter. The results indicate that building vulnerability levels in Suwuk Beach range from low to high, with 30 buildings classified as low vulnerability, 132 as moderate, and 60 as high vulnerability. The total estimated building loss reaches IDR 701,066,400. These findings indicate that Suwuk Beach has significant potential economic losses due to tsunami hazards, highlighting the importance of mitigation strategies based on spatially explicit information on building vulnerability and loss estimation to support disaster risk reduction efforts.

Keywords: tsunami, building vulnerability, PTVA-4, loss estimation, Suwuk Beach