

**ANALISIS *SOIL QUALITY INDEX* (SQI) BERDASARKAN TOPOSEKUEN
DI LERENG ANTROPOGENIK DESA SERANG, KECAMATAN KEJAJAR
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INTISARI

Aktivitas antropogenik pada lahan berlereng mampu merubah karakteristik lereng. Bersamaan dengan ini kualitas tanah juga dapat berubah oleh aktivitas antropogenik dan proses geomorfik yang pada akhirnya berpengaruh terhadap perkembangan tanah. Secara umum, rumusan *Soil Quality Index* (SQI) terbukti valid untuk menilai tingkat degradasi lahan berdasarkan fungsi dari berbagai sifat tanah, serta bermanfaat dalam memantau perubahan kondisi tanah dari waktu ke waktu. Penelitian ini dilakukan untuk (1) menganalisis secara spasial SQI di lereng antropogenik Desa Serang, Kecamatan Kejajar, dan (2) menganalisis hubungan SQI dengan produktivitas lahan di lereng antropogenik Desa Serang, Kecamatan Kejajar.

Penelitian dilakukan di lahan antropogenik Desa Serang, Kecamatan Kejajar. Lahan yang dipilih memiliki tiga posisi lereng yaitu sumit, shoulder, backslope, dan footslope. Pengambilan sampel tanah dilakukan berdasarkan posisi toposekuen dengan mengumpulkan masing-masing dua sampel secara tidak terusik pada tiga titik yang berbeda yaitu dalam alur tanam, 10 cm dari alur tanam, dan titik tengah antara alur. Analisis sifat fisik tanah dilakukan tanpa komposit, sedangkan analisis sifat kimia dan biologi tanah dilakukan dengan mengkompositkan sampel secara merata. SQI disusun dengan menerapkan prosedur *Principal Component Analysis*.

Toposekuen atas (*shoulder*) diklasifikasikan sebagai posisi dengan SQI sangat buruk (0,11), nilai ini meningkat pada backslope yang dikategorikan sedang (0,45), dan menurun pada footslope diklasifikasikan buruk (0,34). Hubungan SQI dengan produktivitas tanaman kentang adalah linear negatif, artinya SQI tidak terlalu berpengaruh terhadap produktivitas kentang. Tidak adanya hubungan antara hasil panen terhadap toposekuen dimungkinkan adanya penyesuaian praktik pertanian yang dilakukan petani dengan kondisi spesifik lahan.

Kata kunci : Indeks kualitas tanah, lahan antropogenik, toposekuen, produktivitas lahan

ANALYSIS OF LAND DEGRADATION BASED ON TOPOSEQUENCE IN ANTHROPOGENIC SLOPES OF KEJAJAR SUB-DISTRICT

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ABSTRACT

Anthropogenic activities on sloping land can alter slope characteristics. Simultaneously, soil quality may also change due to anthropogenic activities and geomorphic processes, ultimately affecting soil development. In general, the Soil Quality Index (SQI) has been proven valid for assessing land degradation levels based on various soil functions and is useful for monitoring changes in soil conditions over time. This study aims to (1) analyze the spatial distribution of SQI on anthropogenic slopes in Serang Village, Kejajar District, and (2) examine the relationship between SQI and land productivity on anthropogenic slopes in Serang Village, Kejajar District.

The research was conducted on anthropogenic land in Serang Village, Kejajar Sub-district. The selected land has three slope positions: shoulder, backslope, and footslope. Soil sampling was carried out based on toposequence positions by collecting two undisturbed samples at three different points: within the planting groove, 10 cm from the planting groove, and at the midpoint between grooves. Physical soil properties were analyzed without compositing, while chemical and biological properties were analyzed using evenly composited samples. The SQI was developed using the Principal Component Analysis procedure.

The upper slope (shoulder) was classified as having a very poor SQI (0.11). The value increased at the backslope, categorized as moderate (0.45), and decreased again at the footslope, classified as poor (0.34). The relationship between SQI and potato productivity showed a negative linear trend, indicating that SQI had little influence on potato yield. The absence of a clear relationship between yield and toposequence positions is likely due to farmers' adaptive agricultural practices tailored to the specific land conditions.

Keywords: Soil Quality Index, anthropogenic land, toposequence, land productivity