

## **PENGARUH TSUNAMI TERHADAP KUALITAS TANAH KAWASAN PANTAI DI ACEH BESAR, NAD**

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### **INTISARI**

Bencana tsunami yang melanda Aceh pada tanggal 26 Desember 2004 menimbulkan dampak yang sangat besar di segala bidang terutama lingkungan hidup. Upaya rehabilitasi yang dilakukan selama ini banyak mengalami kegagalan dikarenakan kurangnya informasi mengenai karakteristik tanah. Penelitian ini bertujuan untuk memperoleh informasi mengenai karakteristik tanah sehingga dapat dijadikan pedoman sebagai dasar upaya rehabilitasi selanjutnya.

Metode penelitian yang digunakan adalah metode *stratified sampling* berdasarkan zonasi lahan pantai. Untuk mengetahui efek tsunami terhadap kualitas tanah kawasan pantai, dibuat 5 zona penelitian secara vertikal dari garis pantai yang mewakili kondisi lahan pantai pasca tsunami di Aceh, yaitu zona berkode ET1 (zona kelapa), ET2 (zona bakau), ET3 (zona tambak di Utara jalan), ET4 (zona tambak di Selatan jalan), dan ET5 (zona nipah). Analisis data dilakukan secara komparatif kuantitatif.

Hasil penelitian menunjukkan bahwa kedalaman endapan pasir di daerah tambak mencapai ketebalan 70-80 cm, diikuti zona bakau dan nipah yaitu 20-30 cm dan zona kelapa hanya setebal 5 cm. Kondisi tersebut menjadikan lahan yang semula bisa ditanami bakau menjadi tidak memungkinkan lagi ditanami bakau. pH aktual tanah pada masing-masing zona cenderung mendekati normal yaitu diantara 6,8-7,5. Nilai salinitas rata-rata di lapisan teratas tanah yaitu sebesar 7,88 mS dan terus meningkat menjadi 29,16 mS di lapisan terbawah tanah. Rata-rata kandungan karbon pada semua zona adalah 0,33 % di lapisan teratas dan terus meningkat menjadi 1,39 % di lapisan terbawah. Kandungan karbon pada lapisan teratas cenderung lebih tinggi dibandingkan dengan lapisan terbawah dikarenakan akumulasi endapan pasir oleh tsunami. Kandungan N total tertinggi berada di zona bakau dan yang terendah terdapat di zona tambak, karena daerah tambak didominasi tanah pasir yang miskin unsur N dan terletak di daerah pasang surut yang proses pelindihan N berlangsung lebih tinggi. Kandungan Mg, K, Ca tertukar di dalam tanah tergolong rendah. Kandungan Mg dan K tertukar paling banyak terdapat di zona tambak. Kandungan Ca tertukar paling banyak terdapat di zona kelapa di tepi pantai dan semakin jauh ke daratan di zona nipah semakin kecil kandungannya. Jadi, tsunami telah mengubah kondisi lahan baik dari segi fisik maupun kimia tanahnya.

**Kata kunci : Aceh Besar, bencana tsunami, kawasan pantai, kualitas tanah.**

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## **THE EFFECT OF TSUNAMI TO SOIL QUALITY OF COASTAL AREA IN ACEH BESAR, NAD**

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### **ABSTRACT**

Tsunami disaster in Aceh on December 26<sup>th</sup>, 2004 gave the great impact in the large scale in all sector, especially environment ecosystem. Most of land rehabilitation efforts were failed because of the less soil characteristic information. This research aimed to get the information about of soil characteristic which will be became guide as basic of the land rehabilitation effort at the future.

The research method which used was stratified sampling method with the basic of coastal land zone. The effect of tsunami hazard can be knew by way of made five research zone vertically from beach line as representative of land condition after tsunami hazard in Aceh, namely: ET1 (coconut zone), ET2 (Rhizophora zone), ET3 (north fishpond zone), ET4 (south fishpond zone), and ET5 (nypa zone). Comparative quantitative analysis was used to analyze the data.

The research result showed that the depth of sand sedimentation in fishpond by tsunami hazard was 70-80 cm, followed by mangrove and nypa zone at 20-30 cm, whereas those of in coconut zone was only 5 cm. The sand sedimentation in fishpond zone not be suitable again for mangrove plantation. The pH value in all zone was categorized as neutral to slightly base (6,8-7,5). The average of salinity value in the upper layer was 7,88 mS more and more increase until 29,16 mS in the deeper layer. The average of Carbon (C) content in the upper layer was 0,33 % more and more increase until 1,39 % in the deeper layer. C content in the upper layer was relatively higher compared to the deeper layer, because accumulation of sand sedimentation. Mangrove zone had the highest N content, whereas the fishpond zone had the lowest N content, because fishpond zone was dominated the sand which the low of N content, and its position at the tidal zone which the process of N leaching was higher compared the other zone. The exchangeable Mg, K, Ca content was categorized as low. The fishpond zone had the highest of exchangeable Mg and K content. The highest of exchangeable Ca content at the coconut zone near the beach, more and more decrease in the nypa zone which the position was farthest from the beach. The conclusion is the tsunami had changed land in the physic and chemical soil aspect.

**Key word: Aceh Besar, coastal area, soil quality, tsunami hazard.**

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