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Predicting Slaking Sensitivity in Humid Tropic Soils under Intense Rainfall to assess the Soil Degradation Potential in SIDS

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Aggregate breakdown by slaking is one of the first steps in the soil loss and degradation processes in the humid tropics characterized by annual wet and dry periods. The soil susceptibility to slaking under high intensity tropical rainfall is theorized to be controlled by soil properties such as Clay Content (Cl), Organic Matter Content (OM), Exchangeable Sodium Percentage (ESP) and Cation Exchange Capacity (CEC).

However, mineralogy and Atterberg's limits can strongly influence the impact of the aforementioned soil properties on aggregate slaking. It is therefore hypothesized that soil aggregates with a combination of Cl >45%, OM >5%, CEC >25%, ESP <2% and clay activity (ACT) <0.75 would be the most resistant to slaking and have the greatest water stability under rapid wetting.

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