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Geological Investigation on Batumilmil Formation Deposit in Langkat, North Sumatera and Potential Economic Impact

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Geological structure of Batumilmil formation is strongly affected by regional structures runing from Northwest to Southeast. It's morphological structures has similar directions to mountain region of Bukit Barisan. Batumilmil formation possesses relative steep slope downwards and ramps at the top. In terms of tectonic framework of Sumatra, both originate from Pre–Tertiary, possessing similar composition. Most of the limestone occupy the elongated ridge hills in Batumilmil formation. The presence of Sulkam and Lae Ketuken river split down the deposited limestone covered with Tertiary tuff and claystone units. The appearance of karst topography results from the dissolution of limestone indicated by surface activities (exokarst) and underground activities (endokarst). The exokarst manifestation is observable by the presence of conical hills, whereas endokarst structures are manifested by the appearence of stalagtites and stalagmites inside limestone caves. The unit distribution of Batumilmil formation is tangibly observable in Sulkam, Kejaren and Kaperas. It is a dark-grey to black, fine-grained, sandy, massive unit consisting of veins filled with calcite minerals. Other spots experienced weathering dominated by dissolution calcite mineral. Petrographic studies using the polarizing microscope show mudstone dominates the area with mainly matrix micrite, fossil, less sparit. Chemical analysis reveals that the limestone of Batumilmil has high quality of calcium oxide (CaO) 53.36% and magnesium oxide (MgO) 0.53%. The high quality of calcium oxide has definitely high economic value for various industrial sectors such as cement.

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