

Title : Subsurface Stratigraphy of Diatomite Quarry in Nam Cho Subdistrict, Mae Tha District, Lampang Province Using 2D Electrical Resistivity Survey

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ABSTRACT

The characterization of subsurface rock layers is essential for understanding geological formations and resource potential, particularly in areas of economic significance such as diatomite quarries. This study conducted a 2D electrical resistivity survey in a diatomite quarry area of Nam Cho Subdistrict, Mae Tha District, Lampang Province, to investigate the subsurface stratigraphy and establish a geological and geophysical database for the area. The survey utilized a dipole-dipole electrode configuration with four survey lines. Line 1 was 360 meters long with an electrode spacing of 4.5 meters; Lines 2 and 4 were each 240 meters long with a 3-meter spacing, and Line 3 extended 280 meters with a 3.5-meter spacing. The acquired resistivity data were processed and analyzed using AGI EarthImager™ 2D software, achieving a maximum imaging depth of approximately 60 meters below the surface. The results were presented as 2D resistivity cross-sections and interpreted alongside the area's geological data. The subsurface stratigraphy was classified into two distinct layers: the upper layer, characterized by high resistivity values, was approximately 22 meters thick and interpreted as diatomite, while the underlying layer, exhibiting low resistivity values, was identified as shale. However, due to overlapping resistivity values between these layers, borehole data integration was necessary for a more precise interpretation.