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Vein Quartz Occurrences in Southern Sri Lanka – An Overview of Subsurface Characteristics and Extent

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ABSTRACT

The provenance of high quality vein quartz of Sri Lanka is yet to be explained. Despite attempts made for reserve estimation, extensive studies have not been conducted to investigate the possible origin of principal vein quartz occurrences of Sri Lanka. Detailed mapping of these occurrences in southern part of Sri Lanka, along the Highland-Vijayan boundary suggests a pegmatitic origin, where quartz may have been separated from the magma solution at later stages. This explanation suggesting the presence of a root for each and every sporadic vein quartz occurrence is very unlikely when the lateral extent of the studied deposits is taken into consideration.

Detailed field studies on vein quartz deposits at Randeniya, Illukpelessa and Mahagama showed that those are laterally extensive for long distances along the general strike direction although the main occurrence is bulk in appearance. Cross-cutting field relationship of large vein quartz deposits is hardly visible and "pinch and swell" mode of occurrence is a common feature that is observed at many known major quartz veins. A common feature is their cap-like occurrence occupying the top of morphological highs. In many instances, vein quartz caps are rimmed by calc gneiss occurrences and a possible genetic relationship between the two lithologies is yet to be ascertained.

Mahagama resistivity analysis confirmed the cap like occurrence of the vein quartz deposit there and showed no substantial root-like features. The geophysical investigations conducted on the deposit could hardly confirm its "vein type" subsurface extension. This study and other previous studies on vein quartz lead to the conclusion that the subsurface extension of vein quartz is very limited and it demands a reliable model for reserve estimation of vein quartz occurrences.