

**TRACE ELEMENT MOBILITY IN GROUND  
WATER AROUND GEM PITS**

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by

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## ABSTRACT

In relation to its surface area, Sri Lanka could be considered as having gem-bearing areas with the highest concentration of gem deposits in the world. Gem mining in Sri Lanka is still based on 'hearsay' methods. The application of modern scientific methods to gem exploration is a national requirement. Vast areas of land still remain unexplored for gem deposits.

The study was directed towards development of a geochemical and statistical method to investigate gem gravels and potential areas by water chemistry analyzing.

Maudella and Dela, two well-known gem potential areas were selected as test areas and 40 well samples from particular area were used for this purpose. Geochemical differences and relationships in water samples from areas having a potential to bear gems were successfully identified by a statistical method.

In earlier studies the Rb/Sr ratio of stream sediments was used to delineate gem bearing areas. Rb/Sr ratios and element distribution patterns of particular water samples were compared with those earlier studies and both results delineate the same pattern of Rb-Sr ratio. Instead of earlier studies Mg and Fe shows significant relationships with other elements due to weathering of Ferro magnesium minerals in particular area.

Therefor tracer element mobility in ground water around gem pits is possible to use as a prognostication method of gems, with low cost.