

**STREAM SEDIMENT GEOCHEMISTRY AND
MINERAL POTENTIAL OF LOWER WALAWE
AND MAU ARA BASINS**

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by

HIRUNI PRABODHANI MARASINGHE

Mineral Resources and Technology Degree Program

Uva Wellassa University, Sri Lanka

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Abstract

Regional geochemical maps are considered to be a national asset for resource evaluation and environmental management. This project covered a considerable portion of the lower Walawe Ganga and Mau ara which represent the geologically and environmentally important Highland- Vijayan boundary. In addition, human activity can sometimes strongly influence the stream sediment composition it can also be used to identify pollution sources. In this study, distribution of selected major, trace and rare earth (REE) elements were studied to identify potential mineral enrichments in the Lower Walawe Basin.

44 sample locations were selected within lower Walawe and Mau Ara streams. Chemical components were analyzed using various analytical methods. Stream sediment geochemical maps were prepared by using Arc-GIS 9 software and data analysis was done using SPSS 13 software.

A comparison of special element concentrations in studied area with upper crustal and mean stream sediment values shows that Cr, Ni, Y, Zr and Pb at some sampling locations are well above the upper crustal values and mean sediment levels while other elements are below the above global average values. Enrichment of Zr and Y is mainly due to hydro dynamical heavy mineral accumulation in the area. Enrichment of Cr and Ni concentrations indicates potential metallic mineral source upstream of above location. Elevated Pb concentrations could be due to natural sources because there is very low potential for anthropogenic Pb pollution in the area. Also these locations are situated at the vicinity of gem and gold mining areas.

This study reveals the enrichment of Cr, Ni and Pb in several locations in the lower catchment of the Walawe and Mau are basins. Analysis of geographical and geological features of the locations suggests that these elevated levels could be due to natural sources rather than anthropogenic or hydrodynamic enrichments. Therefore, detailed high resolution sampling around these localities is suggested to identify potential mineralization.