

**IDENTIFICATION OF POTENTIAL GEM-BEARING DEPOSITS IN THE UPPER
'WALAWA' RIVER BASIN, SRI LANKA**

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Sri Lanka has a lengthy history of gem production that dates back over 2,000 years. The primary gem bearings in the Rathnapura District, which is known as Sri Lanka's gem capital, are related to the 'Kalu', 'Kuru', and 'Walawe' rivers. Despite the fact that the upper 'Walawa' river basin is recognized as one of the best-known gem-bearing areas, appropriate studies and surveys about gem deposits are seldom carried out. As a result, delineating potential gem-mining sites may provide comprehensive information for future gem-mining prospects. Thus, in this study, 37 gravel samples were collected from river banks (12) and gem pits (25), and the 0.500 mm to 0.125 mm fractions were used for microscopic analysis. The gems in gravel were identified using a KRUSS Optronic GmbH gemological microscope at 10x magnification with light field and dark field illumination. Colour, shape, and surface reflectance were used to identify garnet, spinel, tourmaline, ilmenite, rutile, and zircon. In addition, in gem mining areas, a questionnaire survey was conducted to identify previously mined gemstones. Finally, using integrated geospatial technologies, potential gem-bearing deposits in the upper 'Walawa' river basin were mapped based on collected gravel samples and a questionnaire survey. The results of this study indicate that the Waleboda, Pinnawala, and Amupitiya areas of the upper 'Walawa' river basin had the best potential for having blue sapphire, tourmaline, spinel, and garnet gemstones. The reason for having a higher gem potential in the Waleboda area is that it is a floodplain. Further, there is a marble rock around Amupitiya and Pinnawala areas which is considered a gem-bearing rock type.

Keywords: Gem potential mapping, Geo-spatial technologies, Walawa river basin