ANALYSIS OF SEDIMENTS FOR MAJOR ELEMENTS

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Stream-sediment samples were collected at intervals of 200-400 meters from Opanayaka, a prominent gem-bearing area, and also from Bogawantalawa-Galboda, a similar area, but where gems in considerable quantities were not being reported. *Nambu** samples were also collected from a few gem fields. The samples were dried, sieved, and the portion less than 0.30 mm was ground to 70 μ to make pressed pellets for X-ray Fluorescence (XRF) analysis.

The quantitative analysis for 10 major elements (i.e., Na, Mg, Al, Si, P, K, Ca, Ti, Mn, and Fe) was completed for all 90 samples prepared. To minimize the errors on X-ray counting caused by the instability of the X-ray tube, each set of samples was analyzed and compared with a specific standard Japanese granite reference sample.

The analytical data for the major elements using XRF were accurate. These data were prepared for statistical analysis using Systat and Sygraph packages.

An overall view of the data indicates slightly higher concentrations of Na, Mg, and K and a slightly low level of Si concentration for *nambu* than for stream sediments. The other major elements in *nambu* do not show contrast anomalies when compared with normal stream sediments.

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* *Nambu* is the material leftover in the washing pan after the gem-bearing gravels (*illam*) are washed for gems. Usually, the miners pick gems from *nambu*.

Summarised data:

Type of sample	Element concentration (weight %)					
	Na	Mg	Al	Si	P	K
Nambu (Opanayake)	1.00–1.50	1.2–1.5	11–13	24–26	0.04–0.08	1.7–2.2
Sediments (Opanayake)	0.01–1.00	0.2–1.0	6–10	22–30	0.03–0.07	0.2–2.0
Sediments (Bogawantalawa)	0.10–0.30	0.3–0.6	9–12	22–30	0.08–0.13	0.5–0.9

The comparison of major-element concentrations of *nambu* with the surrounding stream sediments may give a valuble clue for the source area of gem beds. However, further studies of the behaviour of trace elements are required to determine these source areas.