A study of relationship between stratigraphic patterns and paleo-climatic changes in Rathnapura basin, Sri Lanka

*Sumanajith Kumara¹, Nelum Kanthilatha²

1. Department of Geography, University of Sri Jayewardenepura, Sri Lanka. , 2. Department of Sociology and Anthropology, University of Sri Jayewardenepura, Sri Lanka.

Quaternary sediments of Sri Lanka is distributed in river valleys as valley-fill deposits and floodplain deposits. Sri Lanka, as a tropical country is prominent of depositing sediments because of high rate of erosion, transportation and deposition in river flows. There is an evidence of stratigraphical patterns and paleo-climatic changes from the Quaternary period. The dominant mode of sediment transport and deposition as well as the composition and stratigraphy reflect the prevailing environmental conditions. Stratification of many sediment types in the Kalu Ganga river basin in Rathnapura is conspicuous in terms of depth of sediments and number of sediment layers. This research aims to study the sediment types and stratigraphy in Rathnapura basin. Sediment samples were taken from the gem mines representing the middle and lower catchment of the Kalu Ganga river basin. Gem mines provide a valuable opportunity to examine the stratigraphy and other physical characteristics of the fluvial sediments in this area. Sediment types identified mainly by sieve analysis and pipette analysis. There is a spatial variation in the number and the depth of gem bearing sediment layers. Evidence of a lake has come from the lower catchment area of the river. Stratigraphy of the area has rich of evidences to study of paleo-climate of the region.

Keywords: stratigraphy, sediments, Kalu Ganga, deposition, paleo-climate