

Reconstruction of Paleo environment of Colombo Area;Based on Borehole Stratigraphy

Divomi H. Balasuriya¹, Pathmakumara Jayasingha²

Abstract

This paper is to introduce the vertical distribution of coastal sediments and understanding of paleo environmental changes in Colombo area at the West coast of Sri Lanka. Stratigraphic Data extracted from 384 boreholes in the study area from National Building Research Organization were analyzed from a sedimentological and stratigraphical view. According to the results, the depths of the bore holes were maintained to 30 m. It is well noted that a cohesive (or granular) soil makes up the top layer of over 90% of the core samples. Abundance of peat and organic sediments in the stratigraphy have been recorded at the coast of Colombo and around Baire Lake, Keththarama and Canal area of Kirulapone indicating a marshy environment with well grown vegetation cover. Nearly a 2 m thick such layers well indicate the above fact while stratigraphy shows a vertical distribution from 6 m to 8 m in depth. It seems that the thickness of the organic layer is kept the same while depth of the existing was decreased to 4 m to 2 m in the stratigraphy towards the land area at a distance of ~4.5 km from the coast. Further, intense rock weathering was recorded more towards the land hence the weathered bed rock could be identified at a depth of 16 to 18 m. That has been extended further to Colombo coast showing a depth of 6 to 8 m in the stratigraphy. Those results are conclusive evidences for a sea level fluctuation due to global warming most probably at 3000 BP in the Holocene. Hence gradual changes in sedimentary profiles were marked while decreasing the sea level due to a regression process that has set the present sea level.

Keywords: Colombo, Coast, Stratigraphy, Bore hole data, Organic layer

¹ *Montclair State University, USA; balasuriyad1@montclair.edu*

² *Department of Geography, Faculty of Arts, University of Colombo; jpathma@geo.cmb.ac.lk*