Facies analysis in the southern part of Kathmandu basin and its significance for lake delta deposits during late stage of ancient lake

Mukunda Raj Paudel[1]

[1]Department of Geology, Trichandra Campus, Tribhuvan University, Ghantaghar, Kathmandu, Nepal
mukunda67@gmail.com

Thick sandy and muddy sequence covered the open lacustrine facies of the Kalimati Formation from the southern part of the Kathmandu Basin. Following five facies association (Fig.1) are recognized within the sandy and muddy facies of Sunakothi Formation: (a) facies association (pd): it is composed by muddy rhythmites and silt and laminated to ripple sand bed of the prodeltaic origin (b) Facies association (df): it is composed by the cross-stratification, ripple-drift and parallel lamination of the lacustrine delta front origin (c) facies association (dp): it is characterized by muddy flood-plain and alteration of the fine and coarse sediments, which indicates delta-plain origin (d) facies association (ml): it is characterized by sandy to silty rhythmites of the marginal shallow lacustrine origin above the delta-plain (e) fluvial association (Ff).

Former three associations is interbedded by the thick gravel deposits of the gravelly braidded river origin. It indicates that the transition from lacustrine to alluvial environments in the southern part of the Kathmandu Basin is characterized by fluvial and deltaic system in the south. Sedimentological study of the Sunakothi Formation indicates that these sediments were deposited during the rapid lake level rise and fell indicated by the thick channelized fluvial gravel beds within the sandy and muddy sequence. The cause of this change is due to climatic and activity of the basin margin tectonics of the Kathmandu Basin. On the basis of this study, lake delta of Sunakothi Formation is the southern counterpart of the Thimi-Gokarna Formation distributed in the northern part of the basin

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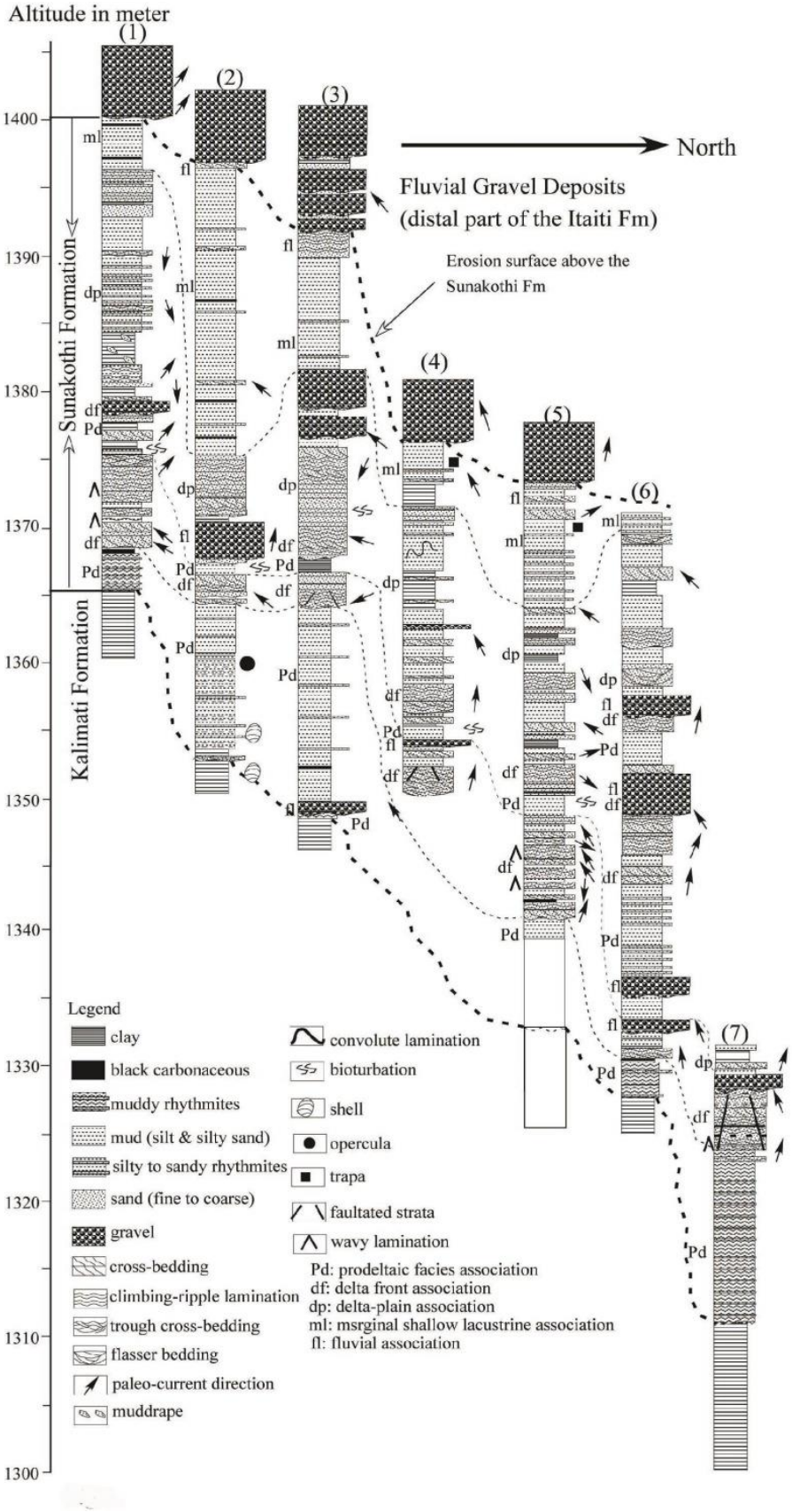

Figure 1. Detail columnar sections of the southern part of the basin showing different lithofacies. Number 1 to 7 indicates location of the columnar section within the study area.