

## Hydrogeological Study of Shallow and Deep Aquifers in Balaju-Boratar Area, Kathmandu, Central Nepal

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**Abstract :** Groundwater is the main source of water for the industries of Balaju Industrial District (BID) and the denizens of Balaju-Boratar area. The quantity of groundwater is in a fatal condition in the area than earlier days. Water levels in shallow wells have highly lowered and deep wells are not providing an adequate amount of water as before because of higher extraction rate than the recharge rate. The main recharge zone of the shallow aquifer lies at the foot of Nagarjuna mountain, where recent colluvial debris are accumulated. Urbanization in the area is the main reason for decreasing water table. Recharge source for the deep aquifer in the region is aquiclude leakage. Sand layer above the Kalimati clay is the shallow aquifer zone, which is limited only in Balaju and eastern part of the Boratar, while the layer below the Kalimati clay spreading around Gongabu, Machhapohari, and Balaju area is considered as a potential area of deep aquifer. Over extraction of groundwater without considering water balance in the aquifers may dry out the source and can initiate the land subsidence problem. Hence, all the responsible of the industries in BID area and the denizens of Balaju-Boratar area should be encouraged to practice artificial groundwater recharge.

**Keywords :** aquiclude leakage, Kalimati clay, groundwater recharge

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