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A geological peer review of intermontane Manipur valley, NE India for delineating major hydrogeological issues

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The present paper focuses on the hydrological issues facing in the Manipur valley. The valley which is situated at 24°16' and 25°2' north latitudes and 93°41' and 94°9' east longitudes covers an area of ~1900 km². Geologically, the valley is made up of clay, silt and sand of fluvio-lacustrine origin. This fertile valley which has been serving as the main contributor of agricultural products is inhabited by more than 60% of the total population of the state. However, seasonal vagaries restricted the resource utilization of this valley, like shortage of water in lean season results minimum agricultural production while availability of water during wet season render optimum production. The valley exists amidst series of thrusts, faults, lineaments and other geological structures which will affect on subsurface aquifer geometry, hydraulic yield and other aquifer parameters. Further, the valley has been reported for its arsenic, iron, fluoride, phosphate and nitrate contaminations owing to water table fluctuation and improper use of fertilizers, pesticides and insecticides. Moreover, the Loktak lake; the largest fresh water lake in the NE India endowed with Keibul Lamjao National Park, the home of endangered deer species locally named "Sangai" (Brow-antelared deer or *Cervus eldi eldi*) in its catchment area is located in the valley. The fluctuation of water level of this lake causes significant effect on the surrounding ecology. Therefore, immediate attention on hydrogeomorphic studies, surface and groundwater interaction studies, hydro-morphotectonic studies and hydrogeochemical evaluation are highly essential for proper water resource management of the valley.

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