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Lithological Study and Mapping of Barind Tract Using Borehole Log Data with GIS: In the Context of Tanore Upazila

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ABSTRACT

In this paper the lithological study and mapping of Barind Tract is done by using irrigation boreholes log data in the context of an upazila under Barind Tract in northwest Bangladesh. Northwestern part of Bangladesh is severely drought prone area with lowest yearly rainfall in the country. Before groundwater irrigation only one crop was cultivated in this area in rainy season. After spreading of groundwater irrigation agriculture is flourished here, but groundwater level is severely going down, which is making this area risky for several adverse effect like land subsidence, biodiversity loss etc. Lithology is one of the important factors that affect the recharging of groundwater aquifer of any area. This research mainly based on secondary data. Irrigation boreholes log data are collected from Barind Multipurpose Development Authority (BMDA), a local authority under the Ministry of Agriculture of Bangladesh government provide irrigation in Barind Tract. A GPS survey is conducted to locate the boreholes in the study area. From the study highest thickness of clay layer found 90 ft and lowest 20 ft, and thickness gradually increase from eastern to western side. Aquifer is located between 20 - 90 ft depth from the surface and direction of aquifer is western to eastern side. Agriculture of study area is totally dependent on groundwater irrigation. Thick layer of clay impede recharging of groundwater table. Due to thick layer of sticky and plastic clay land subsidence risk is low, but it act as aquitard which impede groundwater recharging and increase surface runoff.

KEYWORDS

Lithology; Barind Tract; Borehole Log; Tanore

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