EFFECT OF MARIKINA FAULTS ON GROUNDWATER

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Metro Manila faces a major water shortage problem that will necessitate the development of all possible sources. Structural geological study is an effective tool for maximizing the exploration of water resources. The Marikina Faults, a permeable zone which could facilitate the movement and occurrence of groundwater should be fully evaluated for such purpose.

The main objectives of this paper are: 1) to study the effects of geology particularly the Marikina Faults on groundwater, 2) to evaluate the groundwater resources of the Marikina Valley area, and 3) to assist urban planners in the identification and assessment of the above mentioned problem.

The Marikina Fault zone is composed of several geologic structures in the Marikina Valley at the eastern edge of the Greater Manila Area (GMA). Geological studies indicate that the study area is controlled by two fault systems : the East and the West Marikina Valley Faults. Movements along these structures strongly influenced the morphology and groundwater conditions of the study area.

Hydrogeologic studies show that the groundwater is confined to the Pleistocene Guadalupe Formation, Quaternary Alluvium and along the fault zone itself.

Geochemical studies indicates that there are two types of groundwater (calcium bicarbonate and sodium rich waters) within the Guadalupe Formation, west of the West Marikina Valley Faults and three types of groudwater (calcium bicarbonate, sodium rich and sodium-chloride rich waters) within the Marikina Valley.

By and large, the Marikina Faults are not barriers, but rather facilitate the movement and circulation of groundwater. However, this has adverse effects on the groundwater quality as seepage of contaminated groundwater is enhanced.