

## Optimization of Primary Monitoring Wells Network by Inverse Distance Weighting Method in Jakarta Groundwater Basin

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### Abstrak

#### **ABSTRAK**

The increasing demand of raw water in DKI Jakarta has caused excessive groundwater abstraction. It causes the groundwater level drop to certain level and has emerged cone of depression in some areas. Groundwater management as an effort to recover the groundwater level, requires an integrated groundwater monitoring system. Recently, there are approximately 161 groundwater monitoring wells in Jakarta groundwater basin. Those wells are generally categorized as secondary network, since determined by groundwater abstraction activity. Meanwhile, a representative primary network to monitor the natural condition of groundwater in each aquifer layer is not yet available completely. The method of Inverse Distance Weighting (IDW) spatial estimation is applied to determine the number and distribution of primary monitoring wells based on aquifer geometry using Groundwater Modeling System (GMS) software. Based on the aquifer geometry, it can be arranged monitoring zones and the number of monitoring wells in each zone. There are 9 monitoring zones in Jakarta groundwater basin consist of 1 zone with 1 monitoring well, 2 zones with 2 monitoring wells, 3 zones with 3 monitoring wells, and 3 zones with 4 monitoring wells, so that the total of primary monitoring wells for groundwater monitoring in Jakarta groundwater basin is 26 monitoring wells. This research is expected to be useful for stakeholders to optimize the representative monitoring wells network based on aquifer geometry in sustainable groundwater management.