# Kelayakan sentralisasi sumur dalam di kawasan perumahan sebagai alternatif pengalihan penggunaan sumur dangkal individual = Feasibility study of deep well centralization in residential area as a transition alternative of shallow individual well

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Abstrak

Eksploitasi air tanah dangkal telah menyebabkan penurunan muka air tanah. Penulisan skripsi ini bertujuan memberikan solusi transisi dalam mengurangi ekploitasi air tanah dangkal. Solusi yang ditawarkan yaitu perancangan sumur dalam terpusat disertai sistem perpipaan dengan studi kasus di kawasan perumahan. Metode perancangan sumur dalam terpusat meliputi perancangan sumur dalam menggunakan pompa submersible, serta jaringan distribusi perpipaan dengan metode Hardy-cross. Desain ini kemudian ditinjau kelayakannya dari sisi finansial, sosial, dan lingkungan. Kelayakan finansial meliputi biaya perancangan sumur dalam terpusat, kelayakan sosial berupa peningkatan harga jual properti yang berdampak pada taraf hidup pengguna, dan kelayakan lingkungan meninjau pengaruh penurunan muka air tanah pada kawasan perumahan.
Hasil analisa menunjukkan bahwa peningkatan harga jual properti akibat perbandingan sumur dalam terpusat terhadap sumur dangkal sebesar 1,62 kali lebih besar. Penurunan muka air tanah mengakibatkan tersedianya ruang discharge dan recharge. Nilai B/C rasio dari perancangan sumur dalam terpusat adalah 3,05. Secara umum keseluruhan perancangan sumur dalam terpusat layak diterapkan di kawasan perumahan.

.....The exploitation of shallow ground water has led to the decrease in groundwater. This study aims to offer transition solutions in reducing the exploitation of shallow ground water. Solutions that are proposed consist of the design of centralized deep well equipped with piping system in residential area.
The design method of deep well covers the utilization of submersible pump as well as design of piping distribution system using the Hardy-cross method. The feasibility level of the design is analyzed base on the financial, social, and environmental aspects. The financial analysis deal with the total cost of deep well construction, social feasibility calculate the increasing rate of properties pricing that will directly affect the quality of user’s life, and the environmental feasibility assess the impact of the decrease in groundwater at residential area.
The analysis results show that the increasing rate of property pricing due to the centralized comparison wells in shallow wells is 1.62 times greater, with the decrease itself causes the formation of recharge and discharge areas, and the value of B/C ratio is 3,05. At last, it can be concluded that the design of centralized deep well feasible to be implemented in residential area.