PEMETAAN TINGKAT KESADAHAN DAN KUALITAS FISIK AIR SUMUR GALI BERBASIS SISTEM INFORMASI GEOGRAFIS (SIG) DI WILAYAH KERJA PUSKESMAS PENGASIH II KULON PROGO

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INTISARI

Latar Belakang: Kebutuhan akan sumber air bersih menjadi permasalahan yang sering dijumpai di masyarakat. Sumur sumber utama penyediaan air bersih bagi penduduk, baik di perkotaan maupun di pedesaan. Peranan air tanah (sumur gali) sebagai sumber utama untuk memenuhi kebutuhan pokok hajat hidup orang banyak (*common goods*), sepeperti air minum, rumah tangga, industry dan irigasi.

Kualitas air tanah pada setiap daerah berbeda-beda Masalah yang sering dihadapi dalam pengelolaan air tanah adalah kesadahan. Selain kesadahan, kualitas fisik air sumur gali meliputi suhu, bau dan warna juga dapat mempengaruhi kualitas air. Air yang kualitasnya buruk akan mengakibatkan lingkungan hidup menjadi buruk sehingga akan mempengaruhi kesehatan dan keselamatan manusia. Akibat mengkonsumsi air yang tidak memenuhi syarat dapat berupa penyakit menular maupun tidak menular. Pemetaan tingkat kesadahan dan kualitas fisik air sumur gali untuk mengetahui peta sebaran dan pola sebaran kesadahan, bau, rasa dan warna air.

Tujuan: Mengetahui gambaran persebaran tingkat kesadahan dan kualitas fisik air sumur gali di wilayah kerja Puskesmas Pengasih II Kulon Progo dengan menggunakan Sistem Informasi Geografis (SIG).

Metode: Penelitian ini merupakan penelitian deskriptif melalui pemetaan berbasis SIG dengan teknik pemodelan berupa *overlay*. Sampel yang digunakan sejumlah 98 sumur gali di wilayah kerja Puskesmas Pengasih II Kulon Progo.

Hasil: *Output* berupa peta sebaran tingkat kesadahan, bau, rasa dan warna air sumur gali di wilayah kerja Puskesmas Pengasih II. Hasil *overlay* peta menunjukkan tingkat kesadahan,bau, rasa dan warna menunjukkan kategori pola persebaran *clusterd* (berkelompok)

Kesimpulan: Sebaran kesedahan masih dibawah baku mutu yaitu 500 mg/L. Terdapat pola sebaran tingkat kesadahan dan kualitas fisik air sumur gali di wilayah kerja Puskesmas Pengasih II serta terdapat korelasi yang rendah antara nilai kesadahan dengan elevasi.

Kata Kunci: Kesadahan, Kualitas Fisik Air, Pola Sebaran, Peta Persebaran

MAPPING THE HARDNESS LEVEL AND PHYSICAL QUALITY OF DUG WELL WATER BASED ON GEOGRAPHIC INFORMATION SYSTEMS (GIS) IN THE WORKING AREA OF PUSKESMAS PENGASIH II KULON PROGO

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ABSTRACT

Background: The need for clean water sources is a problem that is often encountered in the community. Wells are the main source of providing clean water for the population, both in urban and rural areas. The role of groundwater (dug wells) as the main source to meet the basic needs of many people's lives (common goods), such as drinking water, households, industry and irrigation. The quality of groundwater in each region is different The problem that is often faced in groundwater management is hardness. In addition to hardness, the physical quality of dug well water including temperature, odor and color can also affect water quality. Water of poor quality will result in a bad living environment that will affect human health and safety. As a result of consuming unqualified water can be in the form of infectious or non-communicable diseases. Mapping the hardness level and physical quality of dug well water to find out the distribution map and distribution pattern of hardness, smell, taste and color of water.

Objective: Knowing the distribution of hardness levels and physical quality of dug well water in the working area of Puskesmas Pengasih II Kulon Progo using a Geographic Information System (GIS).

Method: This research is a descriptive research through GIS based mapping with modeling techniques in the form of overlays. The samples used were 98 dug wells in the working area of Puskesmas Pengasih II Kulon Progo.

Result: Output in the form of a map of the distribution of hardness levels, smell, taste and color of dug well water in the working area of Puskesmas Pengasih II. The map overlay results show the level of hardness, smell, taste and color showing the category of clusterd distribution patterns (in groups).

Conclusion: The distribution of hardness is still below the quality standard of 500 mg / L. There is a pattern of distribution of hardness levels and physical quality of dug well water in the working area of Puskesmas Pengasih II and there is a low correlation between hardness value and elevation.

Keywords: Hardness, Physical Quality of Water, Distribution Pattern, Distribution Map