

ANALISIS PENCEMARAN AIRTANAH OLEH LIMBAH PETERNAKAN DAN PENGARUHNYA TERHADAP KUALITAS AIRTANAH DI KALURAHAN KULWARU, KAPANEWON WATES, KABUPATEN KULON PROGO

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INTISARI

Kalurahan Kulwaru merupakan kalurahan di Kapanewon Wates dengan mayoritas aktivitas masyarakatnya bergerak pada bidang peternakan. Aktivitas peternakan menghasilkan limbah peternakan yang berpotensi mencemari lingkungan, khususnya airtanah yang berperan sebagai sumber utama kebutuhan air bersih masyarakat. Oleh karena itu, perlu diketahui kualitas airtanah di Kalurahan Kulwaru. Tujuan dilakukannya penelitian ini adalah : 1) Mengidentifikasi kualitas airtanah khususnya parameter pH, COD, BOD, TSS, TDS, Sulfida, dan Amonia di Kalurahan Kulwaru, Kapanewon Wates, Kabupaten Kulon Progo, 2) Mengidentifikasi status mutu airtanah di Kalurahan Kulwaru, Kapanewon Wates, Kabupaten Kulon Progo, dan 3) Menganalisis pengaruh jarak sumur dengan kandang ternak terhadap kualitas airtanah di di Kalurahan Kulwaru, Kapanewon Wates, Kabupaten Kulon Progo.

Data yang digunakan pada penelitian ini berupa data primer seperti Tinggi Muka Airtanah (TMA), sampel airtanah, dan sampel limbah peternakan. Tinggi muka airtanah diperoleh dari pengukuran langsung di lapangan menggunakan *systematic random sampling*. Sampel airtanah dipilih menggunakan *stratified sampling* mempertimbangkan arah aliran dan jarak dengan kandang ternak. Sampel airtanah dan sampel limbah peternakan dianalisis di laboratorium dan hasilnya diperbandingkan dengan baku mutu peruntukan air kelas I. Status mutu airtanah ditentukan menggunakan metode *Water Quality Index* (WQI) dan dianalisis secara deskriptif kuantitatif.

Hasil penelitian menunjukkan bahwa terdapat pencemaran airtanah di Kalurahan Kulwaru yang dibuktikan dengan adanya nilai parameter BOD, COD, sulfida, dan amonia yang melebihi baku mutu. Tiga dari 13 sampel airtanah memiliki nilai WQI di atas 100 yang menandakan status mutu airtanah tersebut buruk, sementara itu, 10 sampel airtanah dan 1 sumur kontrol memiliki status mutu airtanah yang baik. Jarak sumur dengan kandang ternak tidak terlalu berpengaruh terhadap pencemaran airtanah yang terdapat di Kalurahan Kulwaru..

Kata Kunci: Airtanah, pencemaran, peternakan, kualitas airtanah, WQI

**ANALYSIS OF GROUNDWATER CONTAMINATION BY LIVESTOCK
WASTE AND ITS IMPACT ON GROUNDWATER QUALITY IN
KULWARU VILLAGE, WATES SUBDISTRICT, KULON PROGO
REGENCY**

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ABSTRACT

Kulwaru Village is located in Wates Subdistrict, where the majority of the community is engaged in livestock-related activities. Livestock farming generates waste that has the potential to contaminate the environment, particularly groundwater, which serves as the primary source of clean water for the local community. Therefore, it is essential to assess the groundwater quality in Kulwaru Village. The objectives of this study are: 1) To identify the groundwater quality, particularly in terms of pH, COD, BOD, TSS, TDS, sulfide, and ammonia parameters in Kulwaru Village, Wates Subdistrict, Kulon Progo Regency; 2) To determine the groundwater quality status in Kulwaru Village, Wates Subdistrict, Kulon Progo Regency; 3) To analyze the impact of well-to-livestock enclosure distance on groundwater quality in Kulwaru Village, Wates Subdistrict, Kulon Progo Regency

The data used in this study consist of primary data, including groundwater table, groundwater samples, and livestock waste samples. The groundwater table was measured directly in the field using systematic random sampling. Groundwater samples were selected using stratified sampling, taking into account the direction of flow and distance from the livestock enclosures. Both groundwater and livestock waste samples were analyzed in a laboratory and the results were compared to class 1 water quality standards. The groundwater quality status was determined using the Water Quality Index method and analyzed using descriptive quantitative analysis.

The results indicate groundwater contamination in Kulwaru Village, evidenced by BOD, COD, sulfide, and ammonia levels exceeding the quality standards. Three out of 13 groundwater samples had WQI values above 100, indicating poor groundwater quality, meanwhile, 10 groundwater samples and 1 control well were classified as having a good groundwater quality status. The distance between wells and livestock enclosures does not have a significant effect on groundwater contamination in Kulwaru Village.

Keywords: *Groundwater, groundwater quality, livestock, pollution, WQI*