# INTISARI

Desa Bekonang merupakan salah satu desa yang terletak di Kecamatan Mojolaban Kabupaten Sukoharjo, Jawa Tengah. Desa ini merupakan sentra industri alkohol skala rumah tangga yang telah beroperasi sejak tahun 1981. Industri alkohol di wilayah ini menyatu dengan area permukiman penduduk dan limbahnya langsung dibuang ke saluran irigasi dan drainase tanpa melalui proses pengolahan. Hal ini berpotensi menimbulkan dampak buruk bagi lingkungan, terutama air tanah sebagai sumber air bersih. Oleh karena itu, penelitian ini bertujuan untuk menganalisis kandungan limbah cair industri alkohol, mengetahui pengaruh limbah ini terhadap kualitas dan tingkat pencemaran air tanah, dan menyusun strategi pengelolaan air tanah di Desa Bekonang. Kualitas air tanah diukur pada 7 titik sampling yang ditentukan secara *purposive sampling* berdasarkan jarak dengan industri alkohol dan pola aliran air tanah. Analisis tingkat pencemaran menggunakan indeks pencemaran dan analisis strategi pengelolaan dengan *analytical hierarchy process*. Hasil analisis menunjukkan bahwa kandungan limbah cair industri alkohol Bekonang melebihi bakumutu air limbah industri ethanol menurut Peraturan Daerah Provinsi Jawa Tengah No. 5/2012. Nilai TSS 5330 mg/L, BOD 6280 mg/L, dan COD 168500 mg/L. Uji parameter fisik dan kimia air tanah menunjukkan bahwa limbah cair industri alkohol tidak mempengaruhi kualitas air tanah di Bekonang. Kualitas air tanah mengalami penurunan pada parameter biologi, namun diduga bukan berasal dari limbah industri alkohol karena nilai total *coliform* dan *fecal coliform* pada limbah cair industri alkohol rendah. 4 titik sampling (1, 2, 3 dan 5) tercemar ringan dengan rata-rata indeks pencemaran berkisar antara 2,126 – 2,157. Aspek lingkungan menjadi prioritas dalam menyusun strategi pengelolaan air tanah di Desa Bekonang dengan alternatif prioritas pengelolaan limbah cair industri alkohol. Namun, hasil uji empiris tidak menunjukan adanya pengaruh limbah cair industri alkohol terhadap kualitas air tanah, sehingga alternatif pengelolaan ini dapat tetap dilakukan untuk mencegah dan mengurangi pencemaran terhadap kualitas air permukaan.

Kata Kunci: industri alkohol, limbah cair, air tanah, kualitas air, strategi pengelolaan.

## *ABSTARCT*

*Bekonang Village is one of the villages located in Mojolaban District, Sukoharjo Regency, Central Java. This area is a center for the household-scale alcohol industry and has been operating since 1981. The alcohol industry in this area is integrated into residential areas and the distillery waste is directly disposed into irrigation and drainage channels without treatment, so it has the potential to harm the environment, especially groundwater as a source of clean water. Therefore, this study aims to analyze the content of the alcohol distillery waste and determine its effect on groundwater quality and pollution levels as well as to formulate a groundwater management strategy in Bekonang. Groundwater quality was measured at 7 sampling points which were determined by purposive sampling based on the distance from the alcohol industry and groundwater flow patterns. The pollution level was analyzed using a pollution index and the analytical hierarchy process was used for the analysis of management strategies. The results show that the content of the alcohol distillery waste exceeds the standard of ethanol industrial wastewater according to the Regional Regulation of Central Java Province No. 5/2012. The value of TSS, BOD, and COD are 5330 mg/L, 6280 mg/L, and 168500 mg/L, respectively. The outcome of the physical and chemical analysis of groundwater indicated that alcohol distillery waste does not affect the quality of groundwater in Bekonang. Meanwhile, the groundwater quality has decreased based on the analysis of the biological parameters, however, it seemingly does not cause directly by the distillery waste as shown by its relatively low values of the total coliform and the fecal coliform. Four sampling points (1, 2, 3, and 5) are slightly polluted with an average pollution index of 2.126 – 2.157. The environmental aspect is a priority in formulating a groundwater management strategy in Bekonang with alternative priorities for the management of the alcohol distillery waste. Nevertheless, empirical results indicating no effect of alcohol distillery waste on groundwater, so this management strategy can be implemented alternatively to prevent and reduce pollution on surface-water.*

*Keywords: alcohol industry, distillery waste, groundwater, water quality, management strategy.*