Ground Water around Piyungan Landfill Contaminated by Heavy Metals and Organic Chemicals

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YOGYAKARTA - Piyungan Landfill is a waste disposal shelter which has been operating since 1995 and is the largest landfill in Yogyakarta. Piyungan landfill is located in Bantul district covering 12.5 hectares, with 10 ha for waste disposal and 2.5 ha for office facilities. Waste in this landfill comes from Bantul, Yogyakarta and Sleman.

Researcher from National University of Laos, Keophousone Phonhalath, said from time to time, the amount of waste accommodated in the Piyungan landfill is increasing, resulting in leachate (waste water) that could affect the quality of contaminated ground water due to heavy metals and organic chemicals.

Her research result in water quality test and pollutant transport modeling indicates that the leachate of Piyungan landfill causes groundwater quality around the landfill area poor. "Therefore, the leachate must be treated properly before being discharged through biological and chemical processing systems," Keophousone Phonhalath said in the doctoral examination in Faculty of Engineering, Saturday (11/2).

According to Keophousone, many factors influence the production and composition of leachate in Piyungan landfill. One of which is the influence of rainfall, more water filling the landfill so that more leachate is produced. In addition, the topography of the landfill also affects the runoff pattern and water balance in the soil.

Heavy metal contents such as Mn and Fe in groundwater now have not been in an alarming condition, however, the concentration will increase from time to time. The woman born in Laos 31 years ago said an accurate assessment of the risk of migration of heavy metal contents and organic chemicals requires the identification of potential problem around the landfill area in which the concentration is different from one another. "It is influenced by the movement of ground water," she concluded.
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