

Surabaya River is Polluted by Chromium

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YOGYAKARTA - Surabaya River is a source of drinking water for household needs. Water from this river is consumed by around 2.4 million people in Surabaya and surrounding communities. However, the condition of the river is now polluted by industrial and households waste products. Research analysis of Surabaya river's water shows the concentration of DO (Dissolved Oxygen), BOD (Biochemical Oxygen Demand), COD (Chemical Oxygen Demand) exceeds the river's threshold value of Class I, while the spatial water quality from upstream to downstream decreases, even the heavy metal concentration increased from year to year.

This was delivered by Drs. Yudhi Utomo, M. Si in open examination of his doctoral program at Faculty of Geography, Saturday (1/10). The promoters were Prof. Dr. Sudarmadji, M.Eng.Sc., Dr. Eko Sugiarto, DEA., and Prof. Sudibyakto, M.S.

Before the examiners board led by Prof. Dr. Hartono, DEA., DESS., Yudhi said that Surabaya river contamination is caused by domestic and industrial waste from 11 streams flowing into Surabaya river. "The water in the river is used as raw material for drinking water. Approximately 69 percent of water in Surabaya River is used as drinking water. In the case of polluted water, not only water but also the fish are contaminated," he said.

He mentioned, water in Surabaya River contains heavy metal Chromium (Cr). For total chromium (Cr) in river sediments, the highest found is 75.46 mg/kg dry mass in dry season and 41.75 mg/kg in rainy season. "At water locations, high concentration of Cr is also found in the sediment," he said.

Not only in sediments, Yudhi said, Cr content is also found in *gabus*, tilapia and *bader* fish which already exceeds the threshold value of 0.4 mg/kg wet mass. And if it is consumed in a long time, it can harm human health. "Fish can accumulate high concentration of heavy metals, the community should be aware of the long term danger from consuming fish coming from heavy metal polluted water," he said.

From the result of his research, the lecturer of Mathematics and Natural Sciences Faculty, Malang State University recommended the government to control industries in the management of Wastewater Management Installation (WWTP) optimally. Especially, the liquid waste discharged into the river should be in accordance with a defined threshold value. In addition, people should be aware that throwing garbage directly into rivers will degrade water quality.

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