

## **Kajian Pencemaran Logam-Logam Berat Terpilih di Sungai Bekok, Johor,**

Sungai Bekok is an important river which supply potable water to the community of Batu Pahat. Sg. Bekok first faces the problem of falling pH to the level 3.0 to 4.0 (too acidic) on March 1998. Other factors such as several increases of conductivity, Fe, Al and Mn affect the water quality of Sg. Bekok. The aggravated problems of water quality in Sg. Bekok has inspired this study to be initiated to determine the safe level pollution of heavy metals plumbum (pb), cadmium (Cd), cluomium (cr), selenium (se), ferum (Fe), aluminium (Al) and manganese (Mn). Sampling was done on 23 March 2002, 6 June 20a2, 9 July 2002 and 4 September 2002. The samples were analyzed using Inductively coupled plasma-Mass spectrometry OCP-MS), model ELAN 9000 perkin Elmer. The study comprises of three sections contain the determination of selected heavy metals, to study the sources of the heavy metals and the concentration of heavy metals obtained were used as data input to establish the water quality model for Sg. Bekok using the QUAL2E simulation model. The result showed the toxic level content of heavy metals, Pb, Cd, Cr and Se consistent low which conformed to WHO standard. Nevertheless, the presence of high concentration of Fe, Al and Mn were expected. Their existence were found to begin from station S8 (Parit Ngamarto) until S11 (water intake of Yong Peng Treatment Plant 2 and 3). The construction of drainage system at S8 (Kg Ngamarto) which was part of the Johor Barat Project was one of the possible cause of the presence of the heavy metals. The site investigation revealed that Sg. Bekok comprised of 3 point sources of pollution namely oil palm factory, paper mill and chicken farm. The QUAL2E model was tested by comparing the best fit of actual hydraulic data (depth, velocity and flow) and heavy metals parameters (Pb, Fe, Al and Mn) data with the simulated data. The simulation

produced satisfactory results which realised the actual condition for Sg. Bekok. The developed model can be used to assist government agencies as a planning and monitoring tool to develop the Sg. Bekok watershed.