SIMULATION OF POLLUTANT MOVEMENT IN WATER BODIES

by

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ABSTRACT

Simulation of pollutant movement is a part of the modelling that simulates the river flow past or through the municipality and effluent from industries to downstream of the river. The specific computer model MIKE 21 is used to simulate pollutant movement in the study area which is polluted by the industrial wastewater. The loading models provide flowrate (pollutographs) and this model simulates the movement of materials through the river.

This study relates to the determination of the distribution of the pollution within the medium and along the boundary of the medium. The simulation of pollution movement were used to analyse several alternatives for remediation or relocation of the model in the vicinity of the industrial area. It is also used to predict the impact of the pollutant on the surrounding areas and to identify the areas worst affected.

INTRODUCTION

1.1 General

In our country there are about 42 major rivers which are so seriously polluted, that no fish can survive, while other rivers are moderately polluted (The Malaysian Environment in Crisis). The pollution is caused mainly by effluents from agro-based industries (mainly palm oil and rubber) and other manufacturing factories and by sewage dumped into the river.

The most serious types of pollution are those following the release of the pollutant from points within or on the boundary of a liquid medium. The propagation of the pollutant is the combined effect of three natural processes :

i. Transport by currents in the fluid

ii. Diffusion by macroscopic processes of stochastic character

iii. Molecular diffusion