

MODELLING POLLUTANT MOVEMENT

by

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ABSTRACT

A proper environmental resources investigation is an essential thrust in any development program to be sustainable for long term basis. The specific strategies adopted may vary in terms of priorities and emphasis depending on the needs of the country but they should include the effective implementation of conservation program, pollution control legislation, environmental awareness and commitments through continuing education, land use planning, Environmental Impact Assessment procedures and research. Basic to all these strategies is an effective monitoring and assessment system which could provide the thrust and objectivity in decision making processes either with respect to legislation's, standard criteria of Environmental Impact Assessment, land use planning or identification of problem areas for further research. A great deal of effort is being expended in improving numerical modelling techniques and rapid developments in the field of numerical models and computer packages have been a feature of recent time. The aim of this study is therefore to model pollutants movement by using one of the computer packages program called MIKE 21.

CHAPTER 1

1.0 INTRODUCTION

1.1 General

Modelling of estuaries to predict the dispersion of pollutants can be a very valuable way of assessing what effluent loads a system can reasonably tolerate and thus be used for setting of consent discharge levels. In already polluted system , modelling can be used to predict how different strategies for decreasing multiple discharges are having the most detrimental effects. The appropriate type of modelling depends on the character of the system under consideration. The estuaries in Malaysia tend to be fairly narrow and thus can be considered as laterally homogeneous. The full hydrodynamic and conservation equations can therefore be integrated across the estuary width to reduce complexity.

As a first modelling approach the equation can be further reduced to a steady state form by removing the time variation , and considering average conditions over many tidal cycles. Models of this type give results for tidal average conditions only but can give very useful guide as to the magnitude of change that may be expected from changes in discharged loads or position of the outfalls.