

**Applied GIS in assessment water quality modeling in the Malacca River. Case study:
introduction to research study**

ABSTRACT

A research study documents the process of examination, using experimentation or investigation to discover and interpret on certain topic for the purpose of increasing the understanding of an issue. The main purposes of research study are to help people to understand and solve problems, communicate ideas and information to the public, help researchers to make decisions through data collection, and develop new knowledge for humankind. Research may be divided into the first stage (problem statement, research questions, hypothesis or objectives), second stage (literature review, research design, instrumentation, preliminary study), and third stage (data collection, data analysis or research findings, preparation of reports). The problem statement of this study involves river water pollution, while the objective of the study is to assess river water quality in the Malacca River, to determine major source and the factors contributing to river pollution, and to determine a spatial decision support system (SDSS) for minimizing water pollution in the Malacca River. The research design involves a quantitative approach (experimental methods), which collects primary data (water sample from Malacca River and GPS data information) and secondary data (water sample from government, GIS map-based data, and RS data). This data will be grouped together and undergo the analysis process of GIS and RS to develop SDSS. Information and results provided will become answers to the objective and determination of achievement of the research study. Therefore, this study provides new information for other researchers to perform more in depth research according to their field of study.

Keyword: Research study; Water quality; GIS; RS; SDSS