HYDRO-METEOROLOGICAL FLOOD SIMULATION INTEGRATING RADAR RAINFALL WITH INFOWORKS RS™ AND GIS ANALYSIS

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1. Letter of Report Submission

Tarikh : 3 Mei 2011

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Prof.,

PER:LAPORAN AKHIR PENYELIDIKAN

Perkara di atas adalah dengan segala hormatnya dirujuk.

Saya Zaizatul Zafflina Binti Mohd Zaki (241827), ketua bagi projek yg bertajuk 'Hydro-Meteorological Flood Simulation Integrating Radar Rainfall with Infoworks^{TM} RS and GIS Analysis' dengan rujukan 600-RMI/ST/DANA 5/3Dst (30/2009) ingin memaklumkan bahawa projek seperti yang tersebut telah selesai dengan jayanya.

Terima kasih kepada pihak Institut Pengurusan Penyelidikan diatas tajaan (dana kecemerlangan) yang diberikan untuk menyiapkan projek ini sehingga selesai. Semoga kerjasama yang baik ini dapat diteruskan untuk projek-projek lain pada masa akan datang.

Sekian terima kasih.

Yang benar,

ZAIZATUL ZAFFLINA BINTI MOHD ZAKI
(Ketua Projek)

PROF.MADYA DR WARDAH TAHIR

ZURAISAH DOLLAH
(Ahli Projek)

5. Report

5.1 Proposed Executive Summary

Thunderstorms and incessant monsoon rainfalls are the cause of many natural disasters including floods in Malaysia. The damages and losses due to floods are so immense that billions of ringgit has been spent for salvages and recoveries. Even though the government has provided various flood mitigation measures but flooding still occur frequently especially if the systems related are not designed properly. A non structural measure strategy is proposed to help to reduce these damages. Identification of flood prone areas would assist the relevant agencies in issuing a timely warning to victims in the affecting areas. In addition, for an integrated flood monitoring measure, the use of alternative rainfall measurement system such as weather radar is considered crucial to complement areas inaccessible to rain-gauges. In addition, by using develop model flood occurrence can be monitored more closely.

5.2 Enhanced Executive Summary

(Abstract of the research)

There are many types of natural hazard occuring in the world and one of it is flood. The main cause of flooding is heavy rainfall and the conditions worsened with the release of water from dam and the tidal effects. In October 2003, the rising of flood waters that had reached danger levels in several areas in Northern Peninsular Malaysia had caused the evacuation of about 17,000 people and was claimed to be the worst compared to the previous event. The focus of this study is to model and simulate the river system by integrating with radar rainfall estimates using Infoworks RS and based on the increasing water level resulted from the model and simulation, inundation areas can be generated using GIS and area or villages that are likely to be inundated in the event of rise of water level can be known. Muda River cross section, and weather rainfall data were used for flood simulation using Infoworks RS while, aerial photo, topography map and water level of Pinang River were used in the development of digital elevation model (DEM) and flood analysis using ArcGIS 9.3 software. Results from the developed model have shown either the water in the river will overflow or not due to the event occured and the inundated area also can be identified. The simulated flood inundation areas would facilitate the relevant agencies to make predictions on the degree of severity of flood damages in the affected areas.