DECISION SUPPORT SYSTEM DEVELOPMENT THROUGH GIS FOR COMPUTER AIDED RIVER MANAGEMENT AND ENHANCED AGRICULTURAL PRODUCTIVITY

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Abstract

Managing river is an acute and more attentive area where it faces heavy water feeds due to rains and problems of sedimentation caused by high sloped terrain in catchment. Pahang River is an example of such situation which receives heavy runoff generated through 220 mm average monthly rainfall. Malaysia is going on fast track of development including infrastructural developments and change of land uses from forest cover to other non-green land uses. Keeping in view this fact, the vulnerability which may cause due to floods in Pahang River seems to be a threat for the sustainable development of the area. The study has main objectives of to find out possible technology tools for the fine tuning of existing computer aided river management system (CARM) with a priority of healthy growth of the country with minimized threats of flood disasters. Learning lessons from Australia which itself under the process to adopt computer aided river management, is discussed as an example of improved river management with an investigation of adaptive implementation of modified system for Pahang River in Malaysia. This, on-going study, has presented that if modified CARM is implemented, the risk of flood disasters not only can be reduced but also river water availability for various sectors including agriculture, food industry would be more sustainable. Possible ways of actions for the adaptive implementation of CARM system are identified with key role of all stakeholders. This analysed investigation has demonstrated a satisfactory estimated system performance so that it can provide more management options for flood control while its adaptation is in the benefit of the country. To comply with datasets requirements for intelligent decision making for plans, a variety of datasets were generated using remote sensing and GIS system, integrated with field held GPS aided surveys. The representations of these datasets further analyzed to ensure the input data quality and reliability of output results. The resultant outputs, in the form of unlike decision options, generated under different set of criteria, would be utilized as a helping tool in the process of decision making for river management and to develop a fine tuned system for development plans in relevant research/operational institutions of Malaysia, especially Department of Irrigation and Drainage

***Key Words**: flood mitigation, computer aided river management, geodatabase, GIS, flood disaster, decision support system*

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