

GIS Integrated System in Developing a Framework of Methodological Approach for Disaster Management in Malaysia

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Abstract: Generally, Malaysia is not considered as a disastrous nation though it experiences some small scale disaster occurrences occasionally. Its location is outside of the vulnerable site of the Ring of Fire in which many earthquakes and volcanic eruptions actively occur. However, in recent years, the records of the local incidents and the neighbouring countries had increased significantly in terms of the incidents and the higher scale of disasters. The incident of Kinabalu earthquake in 2008 has really opened the eyes of various stakeholders, that Malaysia is now fragile to the risk of natural disasters. Consequently, Malaysia stresses the need for a management system for disaster risk strategies. This is addressed in the 11th Malaysia Plan (2016-2020), which is in line with the direction of Sendai Framework for Disaster Risk Reduction (2015-2030). The benefits of advancement of computer related technological GIS software and hardware is supportive for expansion of GIS in both disaster research and practice. It also delivers decision support system in disaster management more effectively. Thus, this research addresses the needs for a clear framework of methodological approach for disaster management using GIS technique. The objectives are to measure the resilience level of a city, and to facilitate the generation of key spatial mappings in disaster management. It involves nine stages and relevant dataset that gives direction and possible outcomes for better disaster management. Among other essential outcomes are susceptibility assessment, risk assessment, and vulnerability assessment. These are vital for various departments and agencies who are stakeholders using GIS in the disaster management process that facilitates the overall decision making process in planning and development.

Keywords: resilience, susceptibility, risk, vulnerable, disaster, GIS.