UNIVERSITI TEKNOLOGI MARA

DATABASE DESIGN FOR FIRE AND RESCUE DEPARTMENT MALAYSIA INTEGRATED DISASTER MANAGEMENT SYSTEM

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ABSTRACT

The increasing number of disasters occurring in Malaysia have demanded the growth in capability to manage the disasters effectively hence, it is important for disaster management in Malaysia to be supported by disaster management experts. Experts are important during disaster response. Unfortunately, experts may not always be present when needed hence, the importance of the computerised system to assist responders during response and recovery phases of disasters are crucial. The community also needs to be prepared to respond to disasters and in achieving so, standardisation is important in developing each of the community disaster management program. It is the objective of this research to develop a model of an incident potential index which is in line with Malaysia disaster management policy, design and implement strategic disaster management database and develop an integrated disaster management system (IDMS) for lead responding agency in Malaysia. For that purpose, lead responding agency in Malaysia as outlined in Malaysia disaster management policy is selected, namely the Fire and Rescue Department Malaysia. Model of the incident potential index was introduced through detailed document analysis method and validated using content and face validity method. While the development of IDMS is based on a new method which was formed from several methods of expert system development. Complementing the method of expert system development is document review, questionnaire, and observation method as the foundation for knowledge conceptualization. XAMPP was used in developing SQL database and HTML editor was used to develop IDMS. Research indicates that three (3) tiers are needed in standardising the level of disaster before the activation of Malaysia disaster management policy and the domain experts are overall satisfactory with the developed model with a mean score of 4.33 and standard deviation of 0.52. IDMS-database is designed based on ERD with a total of 12 entities and 69 attributes. Validation through domain experts indicates that they are satisfied with the IDMS-database ERD showing a mean score of 4.17 and standard deviation of 0.41. the Impact of this research will contribute in standardising the incident potential index in developing disaster management program and increase the capability of the respondent to be independent while reducing the dependency towards experts or professionals at the disaster site.

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CHAPTER ONE

INTRODUCTION

1.1   Research Background

The Merriam-Webster dictionary defined disaster as a sudden calamitous event bringing great damage, loss, or destruction [1]. Studies reveal that the definition of disasters contained several factors which include enormous damage to life, property and the tremendous effect to the economic, social and cultural life of people affected [2]–[4]. Malaysia has been hit by disasters for several times already since past decades, and there are several types of disaster happens in Malaysia ranging from small floods to high impact structural collapse [5], [6]. Table 1-1 Summarize significant disaster recorded in Malaysia.

Table 1-1
Significant Disasters recorded in Malaysia

Year	Location	Event Type	Fatality	Injury	Notes
1976	Campbell Shopping, KL	Fire/Explosion	1	-	30 hours
1988	Butterworth, Penang	Jetty collapse	32	1674	-
1989	Madrasah Fire, Kedah	Fire/Explosion	27	-	-
1991	Sungai Buloh, Selangor	Fire/Explosion	22	103	-
1992	Port Klang, Selangor	Fire/Explosion	10	-	-
1993	Highland Tower, Selangor	Building collapse	48	-	-
1995	Genting, Pahang	Landslide	20	22	-
1996	Genting, Pahang	Road Accident	17	-	-
1996	Pos Dipang, Perak	Mud slide	44	-	-
1996	West Coast, Sabah	Tropical storm/ Ribut GREG	230	*	4925 homes were destroyed
1997	Sibu, Sarawak	Virus Outbreak/	25	-	-