COMMUNITY PREPAREDNESS TOWARDS MAJOR ACCIDENT EVENTS IN GEBENG INDUSTRIAL AREA, KUANTAN

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ABSTRACT

This thesis deals with community preparedness towards major accident events that may occur at Taman Balok Perdana, Kuantan. The main objective of this thesis was to utilize the result of the study in order to improve the community preparedness towards the major accident events. Furthermore, the first objective is to measure the level of community awareness and knowledge towards major accident hazards. The first objective was completed by using questionnaire. From those sources it was identified that the community had high and moderate awareness and knowledge regarding it. The method used was walkthrough observation, semi-structured interview in focus group discussion and document review for the second and third objective was achieved which is to identify the existing practices of community organization towards the emergency preparedness and to identify the decision process made by the community leader during emergency response on major accident events. However, there is no specific practices that been done related to major accident events and the decision process from the community leader only and they was depending on local authority for further action. In order to increase the preparedness of the community,some recommendation had been proposed such as by doing awareness campaign, increase the involvement of stakeholder and community, preparing a contingency plan, and developt a community based disaster risk management (CBDRM). Therefore, the outcome of the study can be used by responsible stakeholder in order to improve more on community preparedness.

ABSTRAK

Tesis ini membincangkan kesiapsiagaan masyarakat terhadap peristiwa kemalangan utama yang mungkin berlaku di Taman Balok Perdana, Kuantan. Objektif utama tesis ini adalah untuk menggunakan hasil kajian ini bagi meningkatkan kesiapsiagaan masyarakat terhadap peristiwa kemalangan utama. Tambahan pula, objektif pertama adalah untuk mengukur tahap kesedaran masyarakat dan pengetahuan terhadap bahaya kemalangan utama. Objektif pertama diselesaikan dengan menggunakan soal selidik. Daripada sumber-sumber tersebut, diketahui bahawa masyarakat mempunyai kesedaran yang tinggi dan sederhana mengenainya. Kaedah yang digunakan adalah pemerhatian, wawancara separa berstruktur dalam perbincangan kumpulan fokus dan kajian semula dokumen untuk objektif kedua dan ketiga dicapai iaitu dengan mengenal pasti amalan sedia ada organisasi masyarakat terhadap kesediaan kecemasan dan untuk mengenal pasti proses keputusan yang dibuat oleh pemimpin komuniti sewaktu kecemasan pada peristiwa kemalangan utama. Walau bagaimanapun, tidak ada amalan khusus yang dilakukan berkaitan dengan peristiwa kemalangan utama dan bagi proses keputusan daripada pemimpin komuniti, mereka bergantung kepada pihak berkuasa tempatan untuk tindakan selanjutnya. Bagi meningkatkan kesediaan masyarakat, beberapa cadangan telah dicadangkan seperti melakukan kempen kesedaran, meningkatkan penglibatan pihak berkepentingan dan masyarakat, menyediakan pelan kontingensi, dan membangunkan pengurusan risiko bencana berasaskan komuniti (CBDRM). Oleh itu, hasil Kajian ini boleh digunakan oleh pihak berkepentingan yang bertanggungjawab untuk meningkatkan lagi kesediaan masyarakat.

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LIST OF ABBREVIATIONS

CIMAH	Control of Industrial Major Accident Hazards
DOSH	Department of Occupational Safety and Health
HSE	Health and Safety Executive
ERP	Emergency Response Plan
COMAH	Control of Major Accident Hazard
ILO	International Labor Organization
WHO	World Health Organization
APELL	Awareness and Preparedness for Emergencies at Local Level
MNSC	Malaysia National Security Council
OSHA	Occupational Safety and Health
FEMA	Federal Emergency Management Agency
UNEP	United Nations Enviroment Program
GEMA	Gebeng Emergency Mutual Aid
NIDM	National Institute of Disaster Management
CBDRM	Community Based Disaster Risk Management

CHAPTER 1

INTRODUCTION

1.1 Introduction

This chapter is mainly emphasizes on the general idea of this study along with the problem statements, objectives, significance of study, scope of study, and the study limitations.

1.2 Background of Study

The Federal Government of Malaysia is developing Malaysia into an ultra-modern industrial region servicing the petrochemical and chemical manufacturing industries. The use of chemicals has increase dramatically due to the economic development in various sectors including industry, agriculture and transport. The risk of accident involving chemicals has become a serious concern for disaster management within the government, corporate sector and the community at large. The major accident event will give huge impact in term of potential loss of lives, injuries, environmental hazard, property damage, and socio economic implication. There are several factors that could trigger chemical accident in the industries such as process and safety system failures which can be occurred by technical or human error. For addition, the natural disaster, terrorist attacks and hazardous waste processing or disposal also can be contribute to major accident events.

Furthermore , the major accident event that possibly can be occur in the industries is such as releasing of toxic chemical release, spillage of chemical during transportation, explosion and fire. If the major accident occur, the organization such as police, fire and government agencies will help the community by coordinate their activities through the local office of emergency management. In many areas there are local Hazardous Materials (Hazmat) Teams, who are trained to respond to chemical accidents.

Disaster preparedness provides a platform to design effective, realistic and coordinated planning, reduces duplication of efforts and increase the overall effectiveness of government, corporate sector and community member's disaster preparedness and response efforts. Disaster preparedness activities fill with risk reduction measures can prevent disaster situations and also result in saving maximum lives and livelihoods during any disaster situation, enabling the affected population to get back to normal within a short time period.

1.3 Problem Statement

The Gebeng Industrial Estate houses is a world-class chemical and petrochemical industrial zone. With four development phases totalling 8,600 hectares of land, it is strategically located only 5 kilometres from the Kuantan Port. With excellent infrastructure and facilities, Gebeng Industrial Estate is rapidly expanding to become the leading chemical and petrochemical hub of the region. The Gebeng Industrial Estate also located near to residential area which near to Balok Perdana. If major accident event occur such as releasing of toxic chemical, spillage of chemical during transportation, explosion and fire at the industrial area it may effected the residential that near to it. In Malaysia, the major accident event literally had been occur before, as in Johor Bahru 20 July 2013, an explosion at granite quarry occurred. The explosion cause 20 car crushed by flying boulders and a Nepali worker at a factory 500m away killed by the falling rock .

Thus, community need to do as much as they can to prepare and mitigate the risks and also know what they can do in a given situation, which includes mitigation, preparedness and an early warning system. If the major accident occur, the community need to be informed

and emergency response must be taken in order to help them survive. Although societies have always cope with disaster caused by natural hazard like flood or storm but if the major accident event occur it will give a different challenge to society than the more familiar natural disaster, because they are not so well understood. Therefore, the investigation regarding community preparedness towards major accident event should be done. This research is mean to utilised investigation result to be used in order to improve the preparedness of the community towards the situation.

1.4 Research Question

This study is conducted to answer the following question:

i. What is the level of awareness on emergency response of community towards major accident hazard?
ii. Does the community organization involve in the emergency preparedness?
iii. What action that the community leader take when they faced the major accident hazard?

1.5 Research Objectives

The objectives of this research are:

i. To measure the level of community awareness and their knowledge towards major accident hazard that may impact the residential area;
ii. To identify the existing practices of community organization towards the emergency preparedness; and
iii. To identify the decision process made by the community leader during emergency response of major accident hazard.

1.6 Significance of Study

The potential benefits can be expected from the proposed study related to the community preparedness toward major accident event are the level of awareness and knowledge of community related to major accident event that may be occur in their residential area can be detected. As it is important for community to know the possibility of the major accident event occur is quietly high because it is near to industrial area.

Furthermore, from the study we will know whether that community organization involve in community preparedness towards the major accident hazard and if they involve what is the action that they had been done to increase the community preparedness. As the community organization has the right to deliver information and they can take their own action to increase the preparedness without only depend on local authorities.

The finding of the study related to the decision process made by the community leader during the emergency response of major accident hazard can be detected. According to the finding, we can identify the decision process that will be taken by the community leader and from the action it will show the preparedness level of the community.

1.7 Scope of Study

The study was focusing on the community preparedness towards major accident events. The study had been done in the residential area of Taman Balok Perdana which is located near to industrial area of Gebeng, Kuantan. In this study, it was focusing on the community that reside at Taman Balok Perdana. Prior to the study in Taman Balok Perdana, A pilot test had been conducted to the community of Taman Tangga Batu Seksyen 1 Sungai Udang ,Melaka whose reside near to the industrial area of Tangga Batu in order to validate the questionnaire sheet. After that, the method that had been used was semi structured interview. As the interview was been conducted with the organization community of Taman Balok Perdana. Then, the questionnaire was been used in order to collect data from the

community. The socio demographic of the participants from the community was also been taken such as age, current position, and working experience and educational level because it can influence the level of awareness and knowledge of the participant.

1.8 Operational Definition

1.8.1 Major Accident Hazard

The threat of an occurrence such as a major emission, fire or explosion resulting from uncontrolled development in the course of industrial activity which lead to serious danger to people and environment (G. Walker & Simmons, 1998).

1.8.2 Public Awareness

The process of informing the general public, increasing level of consciousness related to the risks and how people can act to reduce their exposure to hazard (United Nations, 2015).

1.8.3 Off-site Emergency Plan

An accident takes place in a chemical industry and its effects are felt outside its premise, the situation thus created is called an "off-site" emergency. (Ramabrahmam & Mallikarjunan, 1995)

1.8.4 Stakeholder

Everyone with roles, responsibilities and rights related to chemical safety, including industry/management of hazardous installations, employees of such installations, public authorities at all levels, members of the community/public, and other interested parties (Organization for Economic Co-operation and developtment, 2003)

1.9 Conceptual Framework

Figure 1.1 below show the conceptual framework of the study:

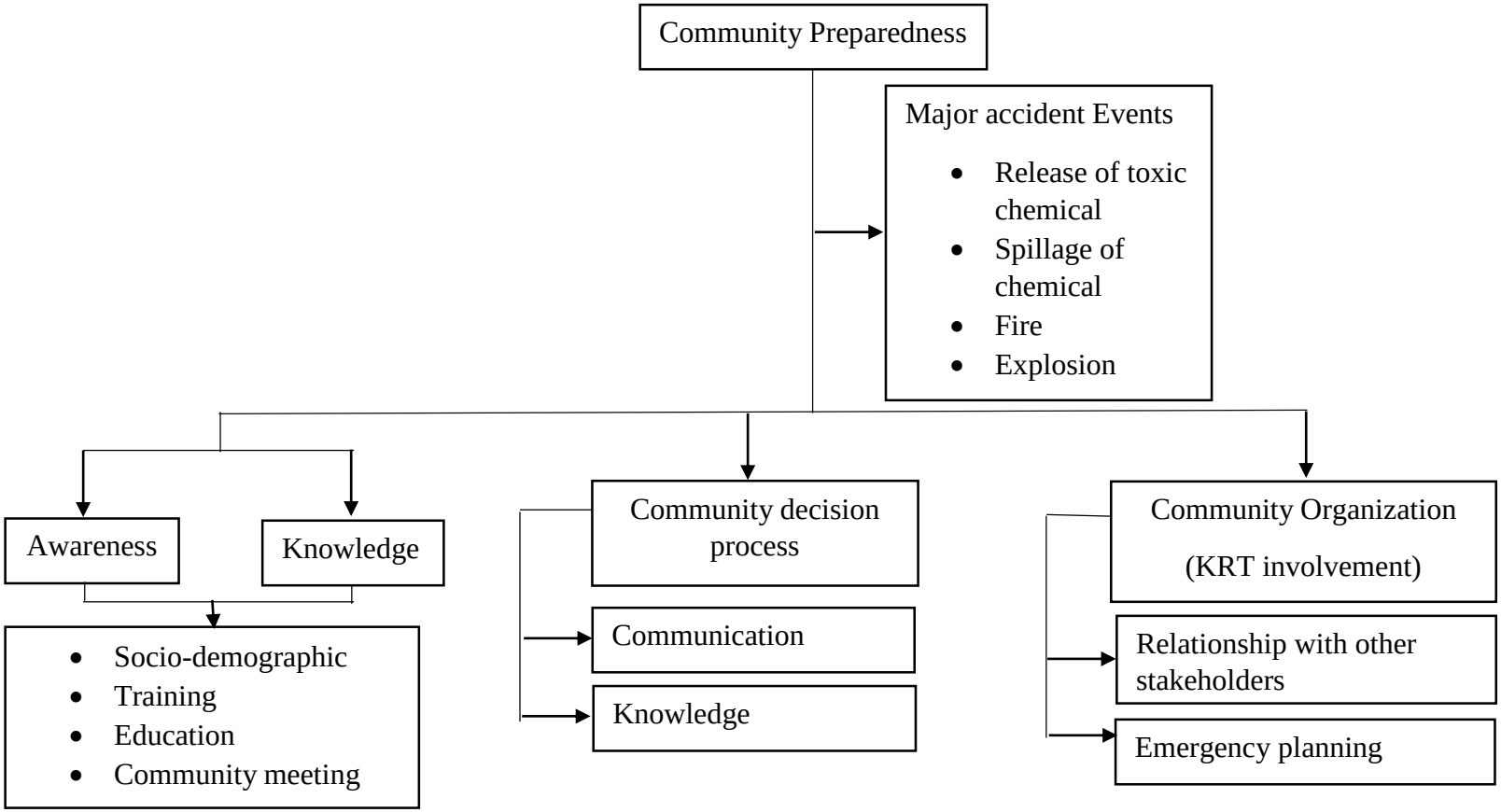

Figure 1.1. Conceptual Framework

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter gives insight on the ideas of past research that support and strengthen this study. Upon these past research and journal are where the study gets its cues and use these ideas to support the theories, models and ideas. The past researches related to this study will be discussed in order to obtain more knowledge and information related to this study.

2.2 Major Accident Hazard

Major accident hazard is an occurrence in particular major emission, fire or explosion resulting from uncontrolled development in industrial activity and it is involving one or more hazardous substance which give serious danger to persons or environment (Dalzell & Ditchburn, 2003). Furthermore, International Labor Organization (1991) defined that major accident hazard in more details as it mentioned that major accident hazard is having the potential to cause an accident by according to its nature and quantity of hazardous substance present and it divided into four general categories:

a) The release of toxic substances that are lethal or harmful at considerable distances from the point release in tonnage quantities;
b) The release of extremely toxic substances which are lethal or harmful at considerable distance from the point of release in kilogram quantities;
c) The release of flammable liquid or gasses in tonnage quantities which may either burn to produce high levels of thermal radiation; and
d) The explosion of unstable material.

There are many major accident hazard that have occurred in the world as well as in Malaysia. The statement supported by United Nations (2015) as there are ree major accident hazard that occurred and influence the awareness of entire world :

I. Seveso

On 10th July 1976, North Italian town of Seveso faced releasing of chemical into the atmosphere contaminating the surrounding area as the explosion occurred at the ICMESA chemical factory. The accident cause 200 people suffered slight injuries and there were no death. However, 37 000 people has been effected by the contamination.

II. Bhopal

On the night 2-3 December 1984, a sudden release of about 30 tons of methyl isocyanate (MIC) occurred at the Union Carbide pesticide plant at Bhopal, India. The accident led to the death of over 2800 people and cause respiratory damage to over 20 000 others.

III. Basel

A fire broke out at the Sandoz storehouse near Basel, Switzerland on 1st November 1986. The store house contained about 1300 tons of at least a 90 different chemical. The majority of the chemicals had destroyed in the fire and cause its to release into the atmosphere, into the Rhine River and into the soil. The Rhine was heavily damage for several hundred kilometers.

Based on the definition and previous accidents, Marchi (1999) stated that it had become an issued to industrial safety, including risk analysis, management, communication; emergency and land use planning; environmental and health protection, has become one of concern and involvement for many stakeholders. However, industrial major accident hazard is defined in the Seveso Directive as the threat of an occurrence such as a major emission, fire or explosion resulting from uncontrolled development in the course of industrial activity which lead to serious danger to people and environment.

2.2.1 Major Hazard Control

As we know, major industrial accidents involving dangerous substances pose a significant threat to humans and the environment as such accidents can give rise to serious injury to human health or serious damage to the environment whether on and off the site of the accident. According to Health and Safety Executive (2015), Europe experienced catastrophic accident in the Italian town of Seveso in 1976 prompted the adoption of legislation on the prevention and control of such accidents. It is called as Seveso Directive (Directive 82/501/EEC) which was later amended in view of the lessons learned from later accidents resulting in the Seveso II Directive (Directive 96/82/EC). Lastly in 2012, the Seveso III (Directive 2012/18/EU) was adopted taking into account, amongst other factors, the changes in EU legislation on the classification of chemicals and the increased rights for the public to access information and justice. In Malaysia according to Department Occupational Safety and Health (2002) summarized the objectives of the Control of Industrial Major Accident Hazard (CIMAH) Regulations 1996. CIMAH Regulations 1996 has two objectives:

1. To prevent major industrial accidents; and
2. To minimize the effect if an accident happens.

However Aini, Fakhru'l-Razi and Daud (2001) stated that the compliance level to the act is not at satisfactory level.

2.3 Emergency Preparedness

World Health Organization (1999) defined emergency preparedness as a programmed of long term development activities whose goals are to strengthen the overall capacity and capability of country to manage efficiently all type of emergency and bring about an orderly transition recovery and back to sustained development and it is supported by Chao and Henshaw (2001) stated that when developing an emergency plan, to avoid confusion, injury, and property damage it is imperative that a clear chain of command exists. In addition, Martinez (2006) stated that preparedness is a process not a product as he mentioned effective response is based on prior knowledge of the capabilities and competencies of stakeholders designated as having tasks to perform when a disaster occurs.

2.3.1 Emergency Response Plan

Ramabrahmam and Mallikarjunan (1995) stated that an emergency plan is a formal written plan which, of identified potential accidents together with their consequences, describes how such accidents and their consequences should be handled either on-site or off-site. However, an Emergency Response Plan (ERP) is an important method for dealing with different types of accidents, such as fires, explosions, toxic releases, earthquakes, floods, typhoons, and landslides as stated by Tseng, Kuo, Liu and Shu (2008).

The other researcher simply define the first aspect of the plan is an inventory of the chemical, physical, and biological hazards associated with the facility and the list could include the storage, use, or transportation of hazardous materials, hazardous wastes, and hazardous substances (Millner, Brady, & Murta, 2014). The definition is supported by the US Occupational Safety and Health Administration (OSHA) as it required the emergency response plan to include the following information:

1. Pre-emergency planning and coordination with outside parties;
2. Personnel roles, lines of authority, training, and communication;
3. Accident command;
4. Emergency recognition and prevention;
5. Safe distances and places of refuge;
6. Site security and control;
7. Routes and procedures;
8. Decontamination;
9. Emergency medical treatment and first aid;
10. Emergency alerting and response procedure;
11. Critique of response and follow-up;
12. PPE and emergency equipment;
13. Coordination with local fire and police personnel and the local emergency;
14. Planning Committee; and
15. Post-incident remediation and recovery.

2.3.2 Off-Site Emergency Plan

Figure 2.1 illustrate about the difference between on-site and off-site emergency plan (Gupta & Nair, 2012). The statement of off-site emergency plan is supported by Kori and Saxena (2006) by mentioning that if an accident takes place in a chemical industry and its effects are felt outside its premises, the situation thus created is called an "off-site" emergency.

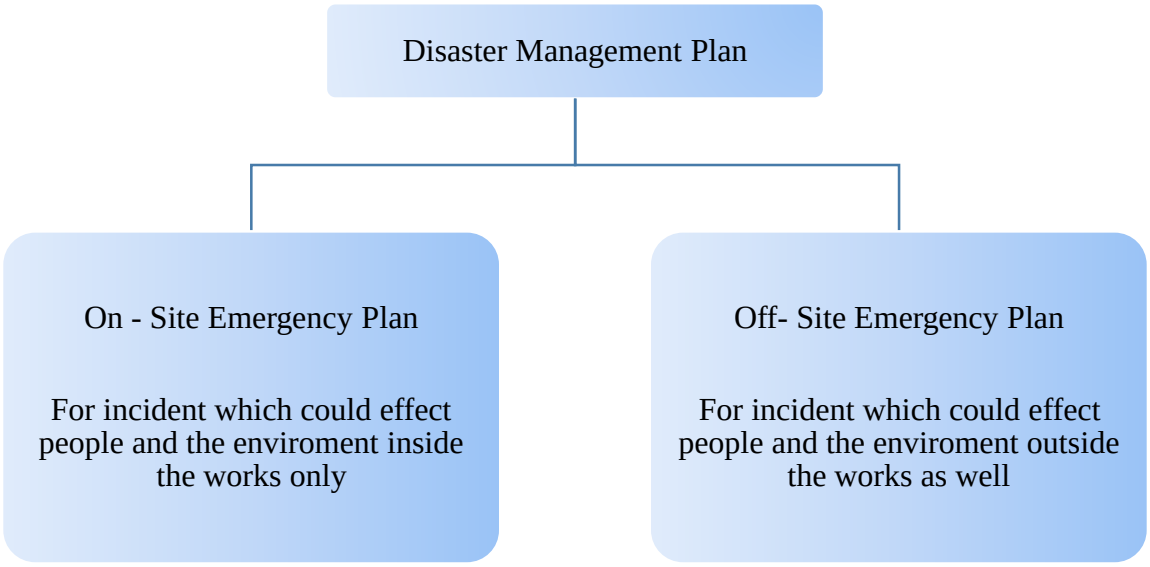

Figure 2.1. On-Site and Off-Site Emergency Management Plan

Sources: Gupta and Nair (2012)

Furthermore, the off-site emergency plan is a responsibility of manufacturer and local authority as it had been mentioned in CIMAH Regulations 1996 :

1) A manufacturer who has control of an industrial activity shall inform the local authority of the area that his industrial activity is considered capable of producing a major accident hazard and of the need for the preparation of an off-site emergency plan for the area surrounding which be likely to be affected by a major accident.

2) In pursuance of sub-regulation :

   The manufacturer shall-

   (a) Inform the local authority or port authority within three months of the commencement thereof, or in the case of an industrial activity which has been determined as a major hazard installation by the Director General under paragraph 7(2)(a), within three months from the date of the determination;

(b) Provide the local authority with the information relating to the industrial activity under his control as the local authority may reasonably require including the nature, extent and likely effects off-site of any possible major accident ; and

(c) Afford to provide the local authority request on all reasonable facilities for the preparation and implementation of an off-site emergency plan.

3) The local authority may upon receiving the information prepare and keep the information update and adequate off-site emergency plan.

O'Mahony (2008) stated that if the manufacturer is following the regulation above, off-site mitigation, arrangement for the provision of information to the public; and the arrangements for the provision of information to emergency services of other member states could be exist. However according to Government-of-India (2007) yearly mock drill of district off-site emergency plans is essential but only a very few full-scale drills of district off-site emergency plans are being conducted in the country. As in the off-site emergency plan, community is also involve in this plan as the community also play as an important rule to the effectiveness of the plan. Involvement of community in learning about and testing appropriate preparedness and response will build a good relationship between the local authorities, the industry and the community at large (Kolanchu 2011). If there is no good relationship between them the impact can been seen by the accident of explosion at Menglembu chemical plant which is located at Ipoh. Yeap (2016) stated that there was no reports of fire at the site after the blast and the resident who live near the plant suffered itchy throats and severe coughs. Hence, it showed that the notification to local authorities and community was neglected as it effected the resident. In order to overcome the problem, off-site emergency plan is important to be develop.

2.4 Community Preparedness

A definition of community emerged as a group of people with diverse characteristic who are linked by common perspectives and engage in geographical locations or setting stated by Green (2001). As for the preparedness, Federal Emergency Management Agency (FEMA) define that the leadership, training, readiness, exercise technical and financial assistance to strengthen citizens, community, state, local and tribal governments and professional emergency workers. As they prepared for disaster, mitigate the effect of disasters, respond to community needs after a disaster and launch effective recovery efforts.

However, Wells *et al.* (2013) added that community preparedness is the ability of communities to prepare for, withstand, and recover in both the short and long terms conditions. In order to be prepared in emergency, the community need to be filled with awareness and knowledge. United Nations (2015) added that the capacities and knowledge developed by governments, professional response organisations, communities and individuals to anticipate and respond effectively to the impact for current hazard events or conditions will increase the readiness of the group involve when the accident occur before, during or after. Preparedness planning is essential to minimizing the impact of disasters on communities and individuals. However, the need for communities to be prepared for a wide variety of critical events places considerable responsibility on local municipal leaders (Hede 2017).

Based on WHO (1999) in community emergency preparedness state the reason why the community should prepare for emergencies, some of the reason are:

i. Members of a community have the most to lose from being vulnerable to disasters and the most to gain from an effective and appropriate emergency preparedness programme;
ii. The positive effects of preparedness programmes can be best measured at the community level;

iii. Resources are most easily pooled at the community level and every community possesses capabilities;
iv. Community are the first responder when accident occur;
v. Sustained development is best achieved by allowing emergency-affected communities to design, manage, and implement internal and external assistance programmes; and
vi. Excessive or inappropriate external assistance can destroy self-reliance and normal social and economic patterns, as well as increase both vulnerability and dependence on provincial, national, and international organization;

2.4.1 Community Awareness

Community awareness is genuine learning in that individuals will be prepared to take actions to promote safety which may not always be in their own interest. They also point to the fact that ordinary people already have some knowledge of and experience in protecting themselves from disaster which is why risk communication should be in the form of dialogue (Wisner, 2006). In addition Gupta and Nair (2012) state that there was a tool used called Awareness and Preparedness for Emergencies at Local Level (APELL) developed by the United Nations Environment Programme's Industry and Environment office (UNEP IE) which can triggered the awareness of community was launched in 1988 since of the various industrial accidents which had adverse impacts on health and the environment for example Bhopal in 1984 and the Sandoz warehouse fire near Basel in 1986, which resulted in extensive contamination of the Rhine.

Madan and Routray (2015) highlighted several important point in APELL handbook, it highlight that it is important to integrate multi-hazard approach at local level, and emphases the importance of multi-stakeholder and all of society engagement in order to increase the community awareness. However Kolanchu (2011) added that in principle of community awareness requires a multi stakeholder approach requires involvement of

representatives from various government departments as well as concerned parties outside of government, such as industry, research institutions, labour and public interest groups.

The complexity of disaster management requires more complex multidivisional organisational structure, not only at government level, but at community level as well. Community awareness can be an effective tool, especially when it contains useful information relative to the community's life, such as evacuation routes and assembly points (Wells et al., 2013) Communities should be active participants in the decisions that affect their livelihoods. In other words they could be leaders in the implementation of prevention programmes.

2.4.2 Knowledge Development of Community

The entrance point to dealing with the community knowledge would have to be through education. According to Priority Number 3 of the Hyogo Framework for Action (2005 – 2015) states that the use of knowledge, innovation and education should be used to build a culture of safety and resilience at all levels. Disasters can be substantially reduced if people are well informed and motivated toward a culture of disaster prevention and resilience, which in turn requires the collection, compilation and distribution of relevant knowledge and information on hazards, vulnerabilities and capacities (Arain, 2015). Information management and exchange strengthen networks, cooperation and partnerships among stakeholders through information sharing.

2.5 Information to Public

Based on Arain (2015) knowledge-based approach is used in the study for enhancing effective sustainable disaster management and the study also consider IT and communication as a method to deliver information. However in the delivering the information, CIMAH Regulations (1996) stated that the following information must be available to the public:

(a) The name of the operator and the address of the establishment;
(b) Confirmation that these regulations apply to the establishment and that the notification required by regulation 6, and the safety report required by regulation 9, has been sent to the competent authority;
(c) An explanation in simple terms of the activity or activities undertaken at the establishment;
(d) The hazard classification of the relevant dangerous substances involved at the establishment which could give rise to a major accident, with an indication of their principal dangerous characteristics in simple terms;
(e) General information about how the public will be warned, if necessary, and adequate information about the appropriate behaviour in the event of a major accident or an indication of where that information can be accessed electronically;
(f) The date of the last site visit carried out further to a programme for routine inspections under regulation 25(5), and where more detailed information about the inspection and the related inspection plan can be obtained upon request; and
(g) Details of where further relevant information can be obtained.

If the public received the adequate information as required by the regulation it can improve the process of decision making by the community. As supported by Rogers (1994) he mentioned that the decision processes of community officials are potentially influenced by a variety of factors, including the extent of emergency planning, the uncertainty associated with the release of hazardous chemicals, conflicts among decision makers, perhaps arising from the associated uncertainty, and the community context of emergency operations and preparedness, which might be characterized by available resources, population segments to be protected, and prior experience with similar incidents.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

This chapter will be discussing about the research procedures that had done and been carried out throughout the study. This chapter consists of research design, study sample, study area, sampling strategy, process and procedures, data collection technique, and data analysis. In achieving the objective, there are several methodology is used. A research study cannot be conducted without the attainment of the results which it desires. Methodology refers to the systematic way of the comprehensive methods which were applied during this research.

3.2 Research Design

The research pursued descriptive survey design and cross sectional study. The data was collected to gain several answers for the questions concerning the about the awareness, knowledge, decision process and practices on the community preparedness towards major accident hazard. The study was cross-sectional because the data was collected at one point in time. Furthermore the data collected was in quantitative and qualitative form as the

method used was questionnaire with close ended question. Besides that, semi-structured interview was conducted by face to face with a group of respondents and individual respondents. Furthermore, the time line of the research was been provided in Appendix A.

3.3 Study Area

The study was focused on the community of resident that reside at Taman Balok Perdana. Taman Balok Perdana is located at Jalan Pintasan Kuantan, 26100 Balok, Pahang Malaysia. The distance between Taman Balok Perdana and the industrial area of Gebeng is only 3 kilometres. Figure 3.1 shows the distance between Taman Balok Perdana and Gebeng industrial area.

Figure 3.1. Location of Taman Balok Perdana

Sources: Google Map

3.4 Sample Population

The resident population of Taman Balok Perdana according to Majlis Perbandaran Kuantan was 6 402 of people and 1164 of houses. According to Majlis Perbandaran Kuantan the population was been determined by calculation. Below are the formula given;

Number of population = Number of houses **x** 5.5 (Estimation number of population in each houses)

Number of population = 1164 **x** 5.5

= 6402

However, based on this research the determination of sample was been determined by the population of houses. 291 of resident in Taman Balok Perdana was been selected according to table for determine sample size by Krejcie and Morgan (1970). 291 of resident was randomly selected to complete the questionnaire while the community organization such as Kejiranan Rukun Tetangga committee was selected to participate in the interview for focus group discussion. For questionnaire only 220 from 291 resident participate in answering the questionnaire. Its show that only 76 percent of the sample answering the questionnaire. According to Yebuda and Brooks C (2008) the acceptable response rate for studies that utilized data collected from individuals was 52.7 percent . So 76 percent from actual study was accepted. Table 3.1 show how to determine the sample in for these study.

Table 3.1.

Table for Determining Sample Size

Table for Determining Sample Size from a Given Population									
N	S	N	S	N	S	N	S	N	S
10	10	100	80	280	162	800	260	2800	338
15	14	110	86	290	165	850	265	3000	342
20	19	120	92	300	169	900	269	3500	346
25	24	130	97	320	175	950	274	4000	351
30	28	140	103	340	181	1000	278	4500	354
35	32	150	108	360	186	1100	285	5000	357
40	36	160	113	380	191	1200	291	6000	361
45	40	170	118	400	196	1300	297	7000	364
50	44	180	123	420	201	1400	302	8000	367
55	48	190	127	440	205	1500	306	9000	368
60	52	200	132	460	210	1600	310	10000	370
65	56	210	136	480	214	1700	313	15000	375
70	59	220	140	500	217	1800	317	20000	377
75	63	230	144	550	226	1900	320	30000	379
80	66	240	148	600	234	2000	322	40000	380
85	70	250	152	650	242	2200	327	50000	381
90	73	260	155	700	248	2400	331	75000	382
95	76	270	159	750	254	2600	335	80000	384
Note; N Is Population Size; S Is Sample Size									

Source: Krejcie and Morgan (1970)

3.5 Sampling Strategy

The respondent in this study was been selected based on purposive sampling. The study use of purposive sampling based on a sample composed of elements that contain the most characteristics and typical attributes of the population (Babbie, 2004). The houses were randomly selected to allow each member of the population to have the same chance of being included in the survey. One family member who qualified to participate in the study (residents of Taman Balok Perdana.) in each household. The distribution of questionnaires was been done by the KRT committee to the resident. The participants were also ensured of their right to anonymity and confidentiality. Next, the sampling method that will be used to answer the interview in group discussion is also used the purposive sampling. This is to ensure the respondents would give the valuable information related to the existing practices in emergency preparedness towards major accident events.

3.6 Data Collection

Various methods was utilized in the pursuit of a research study both quantitative and qualitative methods were used to collect data for this study. According to Neuman (2014) researchers can take multiple measures of the same phenomenon. He further explains that by measuring something in more than one way, researchers are more likely to see all aspects of it. Yet, within the perimeter of this study the following had been utilized; Questionnaire with closed ended question, semi-structured interview, document review and observation.

3.6.1 Questionnaire with Close-ended Question

A questionnaire was important since it enables quantitative data to be collected in a standard way so that the data are internally consistent and coherent for analysis (Malhotra, 2004). Quantitative data will be obtained from the close ended question. As for the close ended questions, participant had a limited set of possible answers. For example, the respondent was given a score in the scale form from 1 to 5, as 1 represent poor while 5 represent very high. For close-ended question quantitative data will be get as it will be easy to analyze. The questionnaire was consist of 20 question which was divided into two section, section A and section B. For the section A, 6 out of 20 question was related to socio-demography of participant while section B consist of 14 questions that related to the awareness and knowledge of the community towards major accident events. The questionnaire was put at Appendix B.

3.6.2 Semi-structured Interview

Miles and Gilbert (2005) stated that semi-structured interviewing is a medium to find out other people experiences and what they think and feel about. In this research semi-structured interview was conducted during face to face interview in the group of respondent. The interview session was conducted in a semi-formal manner and the interviewer was allowed to be more flexible. During the collection of data, the group interview was conducted for two time. First interview was attended by chairman of KRT committee and 3 others member from KRT. Second interview was attended by the chairman only. The respondents was allowed to discuss their opinion and answer among themselves. As it was a useful method in collecting information about specific issues. Therefore, to increase the validity and reliability for the evidence part of the research, an audio or video recorder was utilized during field work.

3.6.3 Walkthrough Observation

At the sampling area, the other method that had been used was walkthrough observation. The function was to gather the layout of the area Taman Balok Perdana or known as overview of the facility initially such as assembly point of the residential area. The objective of the observation was to collect data in a "natural setting" as mentioned by Schuh and Upcraft (2001). Additionally, the author can saw with her own eyes any particular hazards associated with the area.

3.6.4 Document Review

Document review was another tool in the qualitative research through which documents was interpreted by the researcher. It was in the procedures in analyzing and interpreting data generated from the examination of documents and records. Document that was been reviewed in this research was the statistical information of resident in Taman Balok Perdana, the KRT organizational chart and the information to public by several company that involved in CIMAH regulation. The document was obtained in Majlis Perbandaran Kuantan, the KRT committee and company that located in Gebeng industrial area.

3.7 Reliability and Validity

3.7.1 Pilot Study

Pilot study is a small scale study which is conducted before the actual research is carried out. It is used to estimate the feasibility and suitability of the actual research. Furthermore, to identify the reliability of the questionnaire cronbach's alpha test is done by assuring that the questionnaire is consist of good question and inter-related with the objective. Tavakol and Dennick (2011) state that the acceptable values of alpha, ranging from 0.70 to 0.95 which they said that a low value of alpha could be due to a low number of questions, poor inter- relatedness between items or heterogeneous constructs while if alpha is too high it may suggest that some items are redundant as they are testing the same question but in a

different guise. This statement is supported by Audu (2011) as he also mention that the coefficient of 0.70 and above shows that the instrument has a high reliability standard. In order to know the reliability of questionnaire pilot test was conducted at the community that lived near to the industrial area of Tangga Batu Melaka which is Taman Tangga Batu Seksyen 1. It is because the community there was also exposed to major accident hazard same as the community of Taman Balok Perdana. There was 10 participant who answered the questionnaires. The cronbach's alpha test was done by using Statistical Package for Social Science (SPSS) software version 22.0. The data had been located in Appendix C. The value of cronbach's alpha test for the questionnaires was 0.84 so it is acceptable value and had a good consistency for the reliability of questionnaires. Table 3.2 show the cronbach's alpha value with the internal consistency.

Table 3.2

The Range of Cronbach's Alpha and Internal Consistency

Cronbach's Alpha	**Internal Consistency**
$\alpha \geq 0.9$	Excellent
$0.9 > \alpha \geq 0.8$	Good
$0.8 > \alpha \geq 0.7$	Acceptable
$0.7 > \alpha \geq 0.6$	Questionable
$0.6 > \alpha \geq 0.5$	Poor
$0.5 > \alpha$	Unacceptable

Source: George and Mallery (2003)

3.7.2 Triangulation

Olsen (2004) mentioned that triangulation has come to mean a multi-method approach to data collection and data analysis. It is used in a study in order to check the results of one and the same subject. The purpose of triangulation in qualitative research was to increase the credibility and validity of the results. Whereby through methodological triangulation, it used the data generated from interviews, walkthrough observation and document analysis and then combined; hence overcoming biases and problems which arises from single method, single source studies.

3.8 Data Analysis

3.8.1 Statistical Analysis

Quantitative data from the questionnaire will be analysed by the Statistical Package for Social Science (SPSS) software version 22.0. SPSS through various add on modules, it can cater to the more advanced needs of high end multivariate analysis, neural networks, conjoint analysis, etc. it offers the convenience of automating several tasks such as data cleansing and organizing, along with creating charts and other types of output. The findings was presented in the tables with calculation of mean score for the question that involved scale in order to measure the awareness and knowledge of the community. Interpretation of mean scores or the tendencies are shown in Table 3.3. SPSS output was located at the Appendix D.

Table 3.3

Interpretation mean scores for descriptive statistic

Mean Score	**Interpretation Level**
1.00-2.49	Low
2.50-3.49	Moderate
3.50-5.00	High

Source: Wierma (2000)

3.8.2 Interview Analysis

Interviews was part of a research method, they provide insight of the practices of the organization throughout years. Through recorders, researcher was able to record the exact words spoken by the interview that the researcher might have missed or misinterpreted while writing the answers. Analysis means the interpreting of the information provided by the informant and relating it to the main objectives of the study (Appleton, 2008). In comparison, Appleton (2008) states that the analysis part of this method requires the active involvement of the researcher who is expected to reorganize the information, and interpret the interviews in meaningful ways. The interview transcription was located at Appendix E.

3.8.3 Document Analysis

Bowen (2009) has stated that document analysis is a systematic procedure for reviewing or evaluating documents both printed and electronic. The data collected via the document review must be examined and interpreted in order to give meaning and thus gain understanding and additionally develop empirical knowledge (Khan, 2014). The document that had been analyse was the statistical information of resident in Taman Balok Perdana, the KRT organizational chart (Appendix F) and the information to public by several company that involved in CIMAH Regulations (Appendix G).

3.9 Research Framework

Figure 3.2 shows the framework of the research. The types of method carried out was listed for each objectives:

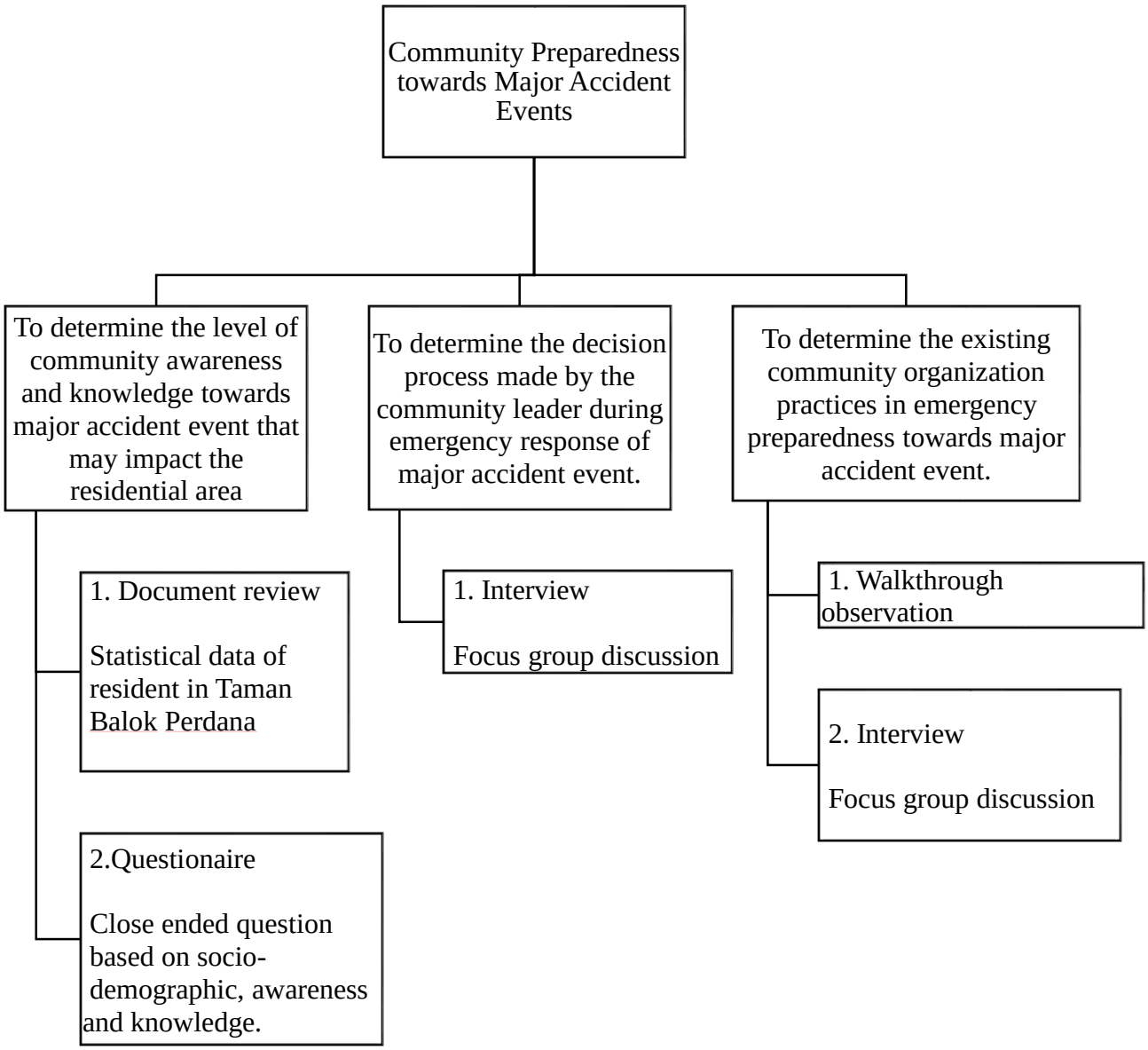

Figure 3.2. Research Framework

CHAPTER 4

RESULT AND DISCUSSION

4.1 Introduction

The results presented in this chapter are based on the questionnaires completed by community of Taman Balok Perdana and interview conducted with a group of KRT member. The chapter starts with the presentation of results from the questionnaires, followed by analysis of the interview, walkthrough observation and concludes by interpretation of the results.

4.2 Socio-Demography

4.2.1 Gender

The question of gender was included in the questionnaires to establish the gender ratio of participants and also to understand the perspectives regarding community awareness and knowledge towards major accident event that may impact the residential area in general from both males and females. The results obtained are presented in Figure 4.1.

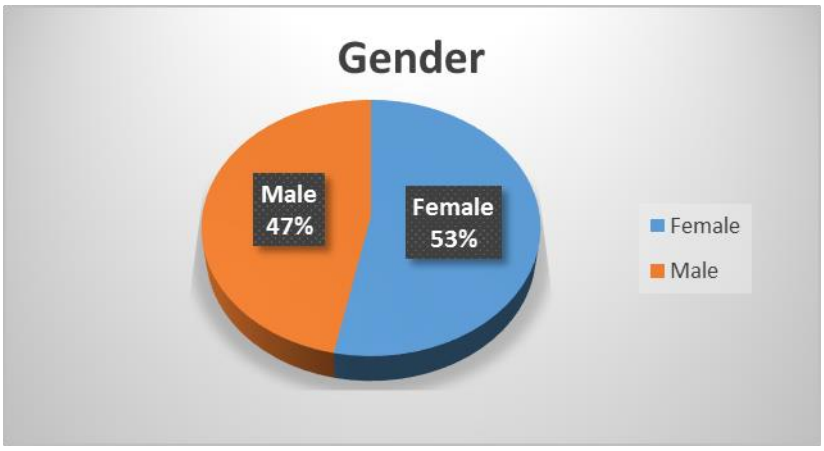

Figure 4.1. Gender

The results from questionnaire indicate that 53% of females and 47% of males participated in the study. As been mentioned in journal men and women's time and place patterns of daily and seasonal activities differ which may produce inequalities in their exposure to disaster (Wisner, 2003). The study is a proponent of the view that disaster preparedness and mitigation should ensure more inclusive and comprehensive planning with engagement of women as partners.

4.2.2 Age

There are studies which show that in some situations the children and the elderly are more vulnerable to the impacts of natural disaster (G. P. Walker, 1991). In the same way that children and elderly are found vulnerable to the impacts of natural disasters, they are vulnerability to impacts of chemical hazards due to physical inability to act swiftly for their own protection. Awareness initiatives should take into account the age factor hence inclusion of age in this questionnaire. This question was included to establish understanding of public awareness in different age groups. The result of question had been shown in Figure 4.2.

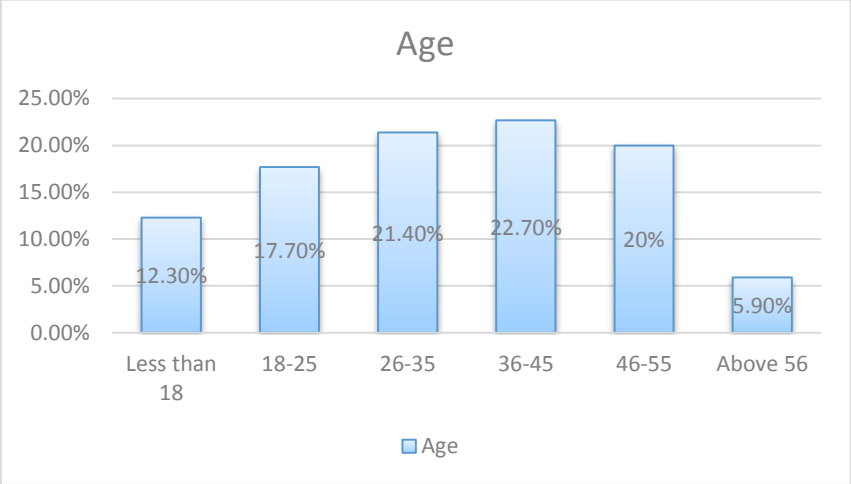

Figure 4.2. Age.

The results in table, reflect a widespread age group representation of people who participated in the study. The highest percentage was that of people in the 36-45 age group who contributed 22.7 %, followed by adults in the 26 – 35 age group with 21.4%; and the least being 5.9% which represents adults above 56.

4.2.3 Level of Education

Participants' level of education is important to indicate their ability to respond effectively to the questionnaires and reduce incidents of uncertainty or no opinion responses (Neuman, 2014). The levels of education can also influence the extent of community awareness and knowledge level of community in Taman Balok Perdana. Figure 4.3 show the outcome of question.

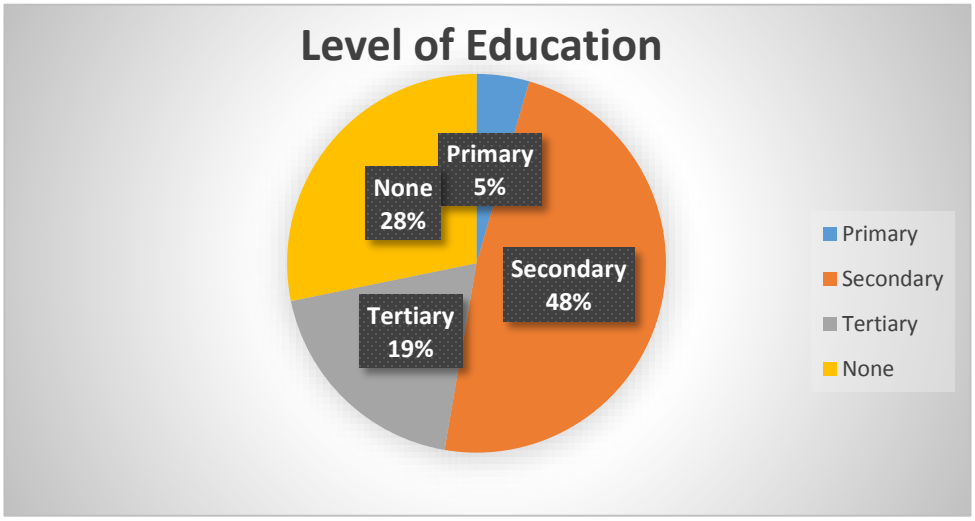

Figure 4.3. Level of Education

The results show that 48% of participants are having of secondary education, while 19% obtained a tertiary qualification. Only 5% of participants had a primary qualification and 28% did not attend school. The number of participants who received tertiary education may be prepared to contribute their knowledge to new developments taking place in their community. However, 33% of participants consist of primary education and some did not attend school at all. The high percentage of participants with secondary qualification creates a need for community preparedness programs which will improve community awareness and knowledge. This is because an educated person is more likely to take steps to receive warnings, recognize potentially threatening events, and respond appropriately to those events according to the (McEntire & Myers, 2004).

4.2.4 Residential Period in Taman Balok Perdana

The question regarding the length of stay was included to establish if the participants were familiar with the dynamics of the area, including historical community awareness programmes employed in the area.

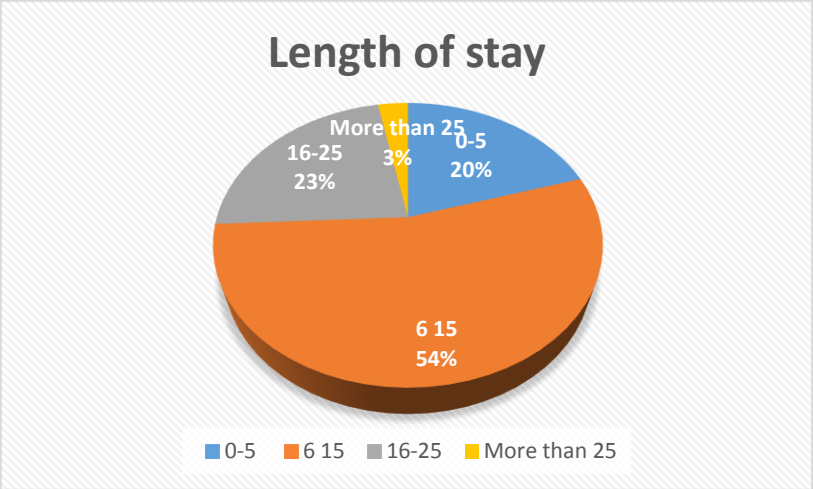

Figure 4.4. Residential Period

The results in Figure 4.4 indicate that only 20% of participants have lived in Taman Balok Perdana for less than five years while 80% have resided in the area for more than six years. This question probes how the community of Taman Balok Perdana with longer and shorter periods of residence may contribute to the study based on their different experiences of incidents which occurred, and also their involvement in community preparedness programmes.It can therefore be concluded that majority of participants due to their length of stay are familiar with the dynamics of the area and may relate with the study topic.

4.2.5 Employment Status

According to Stanganelli (2008), vulnerability and poverty are very highly correlated. They add that vulnerable groups are those that also find it hardest to reconstruct their livelihoods following a disaster, and this in turn makes them more vulnerable to the effects of subsequent hazard events. This question was included to establish the employment status of participants and to know whether they work at the Gebeng industrial area or not.

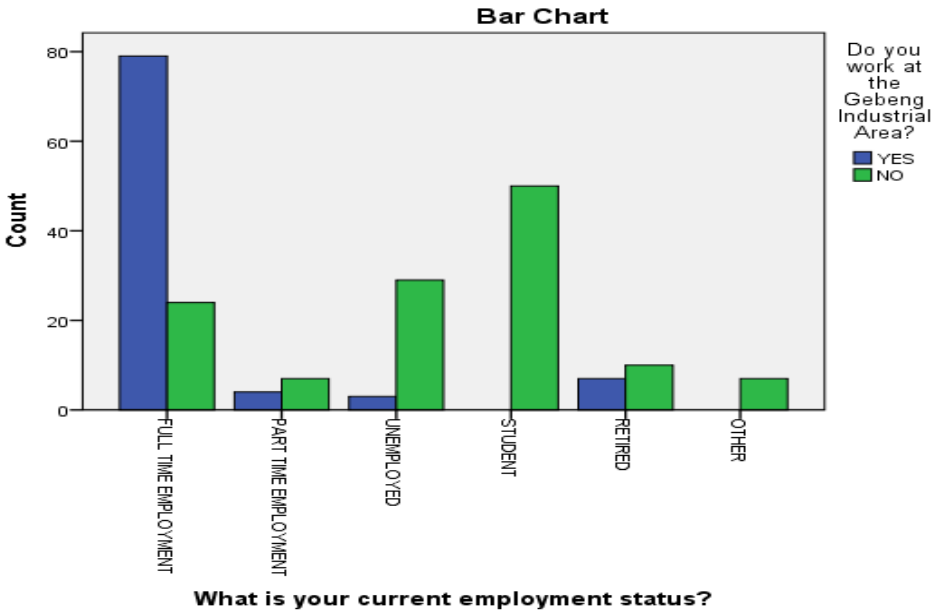

Figure 4.5. Employment Status

The results in table 4.5 indicate that 53% of participants are employed, 48% of them are full time employment while 5% are part time employment. However 18% was unemployed, 22% student and 7% retired. As it conclude that 47% of them are unemployed. Existing literature indicates that unemployment increases the vulnerability of communities by exposing them to hazards (Dalzell & Ditchburn, 2003). This therefore becomes significant to the study in that awareness programs should be structured to increase preparedness and capacitate the residents at all levels of vulnerability. From the 53% of full time and part time employment, not everyone from them is working in the Gebeng industrial area. However for fulltime employment most of them are working at the Gebeng industrial area and from the retired participant was work at the Gebeng industrial area during their previous work.

4.3 Community Knowledge towards Major Accident Events

Knowledge is defined as "the fact or condition of knowing something with a considerable degree of familiarity through experience, association or contact" (Marchi, 1999). The question was included to evaluate whether the participants in the study have knowledge on major accident events that can be affected in their surrounding area as the residential is located near to the Gebeng industrial area.

Table 4.1.

Knowledge Related Major Accident Event

Question	Means Score	Interpretation Level
How would you rate your knowledge of major accident events?	3.60	High

Based on Table 4.1, it show that the participant had high knowledge regarding the major accident events that may occur in their surrounding as it showed that the mean score was 3.60. Kolanchu (2011) in the discussion on the methods of assessing and reducing injury from major hazard accidents, states that the accidents are complex and often not well understood. Even though the percentage of participant knowledge is high, the community of Taman Balok Perdana should be prepared through awareness and information programs relating to major hazards associated with Gebeng industrial area.

4.3.1 Knowledge on Action during Major Accident Events

The residents of Taman Balok Perdana should be prepared through awareness and information relating to major accident hazards associated with Gebeng industrial area operation. The question was included to determine if the participants, as part of the community, are aware of the procedures to follow during major accident event occur.

Table 4.2.

Knowledge on action during major accident events

Question	Means Score	Interpretation Level
Do you know what to do if the major accident occur?	3.68	High
Are you aware of any evacuation procedure in case of major accident events?	3.40	Moderate
Are you aware of any preparedness/contingency plan developed for chemical explosion?	3.44	Moderate
Are you aware of early warning system in case of chemical explosion/fire?	3.41	Moderate

The results from questionnaires indicate in Table 4.2 show that the participants was known on what to do if major accident events occur with high score of mean which is 3.68. However the level of knowledge regarding evacuation procedure, contingency plan for chemical explosion and early warning system are moderate. It showed that the community though that they know exactly on what they need to do if the major accident occur but the reality was they are not really know the exactly plan and procedure that they need to follow during emergency. As we know that, the disaster preparedness is an ongoing process of

assessment, planning and training in order to prepare for a well-coordinated plan of action which will be used to minimize the impact of a hazardous event. The preparedness plan should contain information which ensures that all relevant individuals understand their responsibilities, such as evacuation routes, evacuation procedures, assembly points, during chemical accidents. Communities which have made disaster preparedness plans well in advance of the actual event can achieve quicker and better organized responses when an emergency (Prizzia & Helfand, 2001).

Furthermore, in order to ensure the community know the exact plan and procedure, the appropriate procedure should be inform during the preparedness phase to all community members. As been mentioned on CIMAH regulations 1996 under the responsibility of manufacturer they need to provide information to public at least the information specified in scheduled 3. These procedures should be communicated to the public for support and consent and also to encourage participation (Van Manen, Avard, & Martínez-Cruz, 2015).

The communication will help clear the correct procedures to be followed during emergency. Besides that, information about evacuation procedure can be communicated to the community through media such as local radio, television and postings in public areas like shopping complexes. The media should be involved during the development of emergency plans and should be given information concerning the emergency procedures in order that they have the necessary background to be an effective and reliable source of information if an accident occur (Dr.Mrs. Reeta Kori , Dr. A.K. Saxena, 2006) Furthermore, this study seeks to motivate for effective communication of the preparedness plan to the Taman Balok Perdana residents. Such information should be two-way, providing an opportunity for public input to the authorities as well as providing information to the public from authorities.

Effective communication with the public during an emergency requires the coordinated involvement of different stakeholders such as disaster management officials, community representatives, technical experts and the media. The duties of these parties should be clearly defined during the preparation of emergency plans. However, besides of

the communication, evacuation exercises will also help the community to understand the use of early warning systems and procedures to be followed during an emergency.

4.3.2 Knowledge on Emergency Services Number

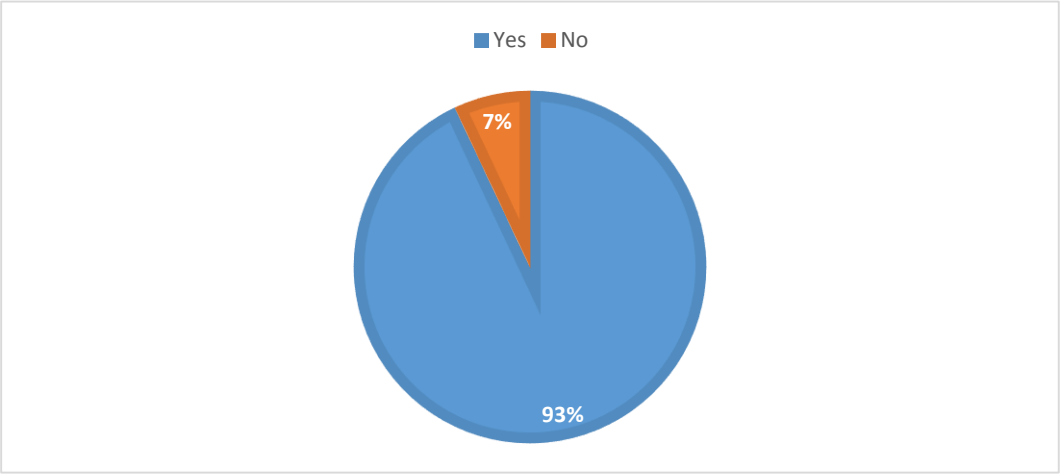

Figure 4.6. Knowledge on Emergency Services Number

It is important that the community of Taman Balok Perdana be aware of the emergency service number if the major accident events occur. According to CIMAH Regulations 1996, the manufacturer should be provided with appropriate information on the composition and the toxicological and other relevant properties of chemical products which the industry produces, for example uses, stores, to disposes of or transport. They should therefore be able to respond and also provide guidance to the public on what basic safety procedures to perform. The question regarding knowledge of emergency services numbers was included in order to know whether the participants were aware of such numbers.

4.4 Community Awareness towards Major Accident Event

Awareness is the state or condition of having a knowledge of consciousness. The Oxford dictionary defines awareness as "knowledge or perception of a situation or fact." Based on the questionnaire, this question was aimed at establishing how the participants came to know about the major accident events that may prevailing in their area. It was also aimed at determining the interest of participants in matters that affect them and their community. The results are presented in Figure 4.7.

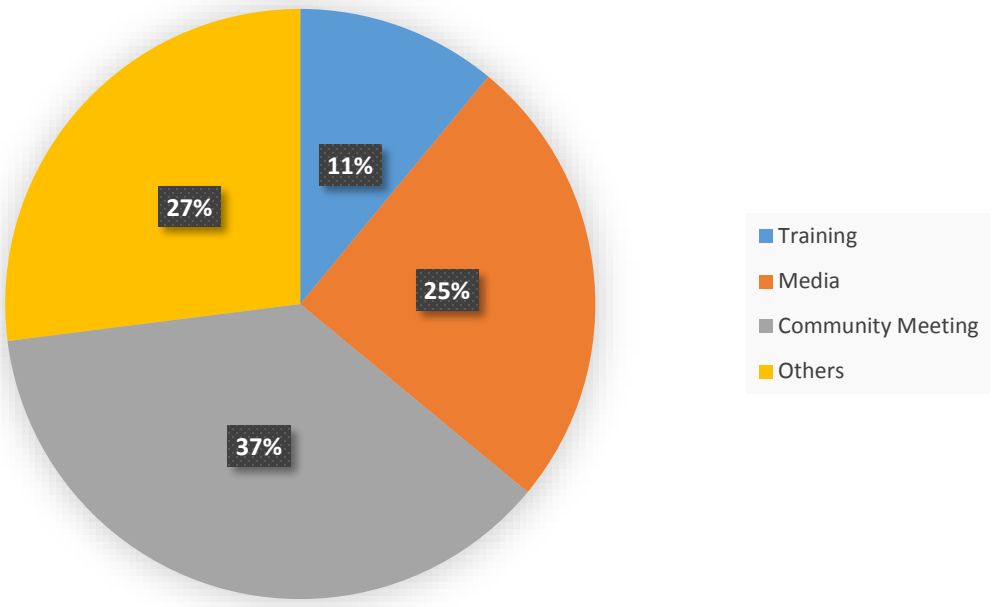

Figure 4.7. Activities that Increase the Awareness

The results show that 37% of participants heard about the major accident event through community meetings, 25% via the media and only 11% through training and while 27% of participants heard from other sources such as by word of mouth and some heard while working at the Gebeng industrial area. The results indicate that participants are concerned about their safety and they also actively participate in community engagements such as community meeting. This statement was supported with the result of the question in

questionnaires regarding their perception on educational meeting regarding major accident events. The result was shown in Table 4.3.

Table 4.3.

Effectiveness of Educational Meeting

Question	Means Score	Interpretation Level
Do you think that meetings around education related to major accident preparedness should be done?	3.55	High
Will you attend such meeting?	3.38	Moderate

According to the mean score of the question, it show that the community was highly agree that the educational meeting regarding major accident preparedness should be done. It show that, when the perception of the community towards the educational meeting was positive, it influence the community to participate in community meeting in order to increase their awareness.

Wells (2013) stated that the degree to which the community believes it is at risk will affect how much time, money and energy it may be willing to devote to planning for prevention and mitigation from major accidents events. Community participation is important not only from the perspective of information dissemination, but also to strengthen the decision-making process. An informed community is able to contribute positively towards their own safety during disasters. Even though, they are highly agree that the educational meeting regarding major accident preparedness should be done, the community attendance towards the meeting was moderate. In the context of public awareness and education related to disaster preparedness, changing attitudes and behavior contribute to promoting a ‘culture of prevention’ (United Nations, 2015)

4.4.1 Local Community Efforts to Raise Awareness

The CIMAH Regulations 1996 requires that the local authority may upon receiving the information prepare and keep an up-to-date and adequate off-site emergency plan. Arain (2015) states that the community is informed about the risks in their community, they are more likely to participate in decision-making processes and take steps to help reduce the risks .Hence, stakeholder participation in the initiatives to raise community awareness on major accident events was explored

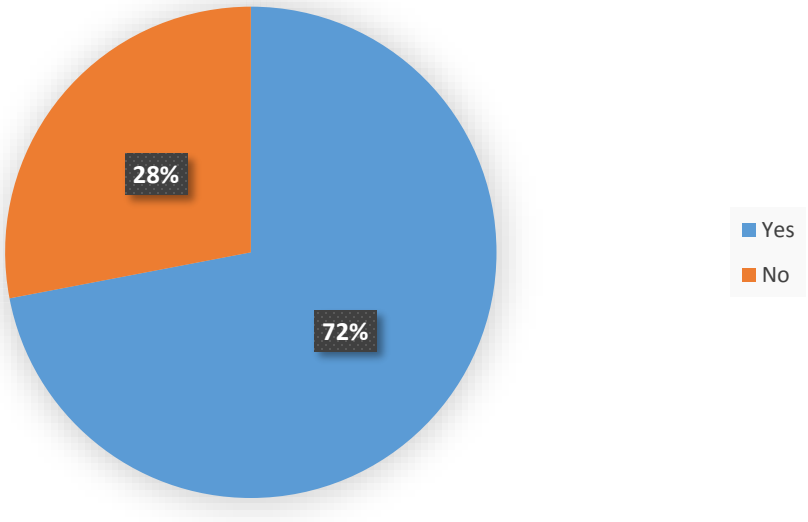

Figure 4.8. Stakeholder Involvement

Based on the pie chart above, 72% of the community agree that there is a distribution of information related to community preparedness that had been done by the local community. However 28% of the participant did not agree to the statement. Distribution of information to public is one of awareness program that can be done to the community in order to increase the community knowledge. Community representatives should co-operate with public authorities and, as appropriate, with representatives of hazardous installations in order to help develop communication programmes and messages (Rogers, 1994). Involvement of community representatives can help ensure that information on hazards is disseminated, is understood by target audiences, and is well- received.Furthermore, this part of the questionnaire sought to establish what the participants had done to address disaster

management issues in their area. It also probed as to which programmes the participants were involved in to address the hazards. The results are presented in Figure 4.8.

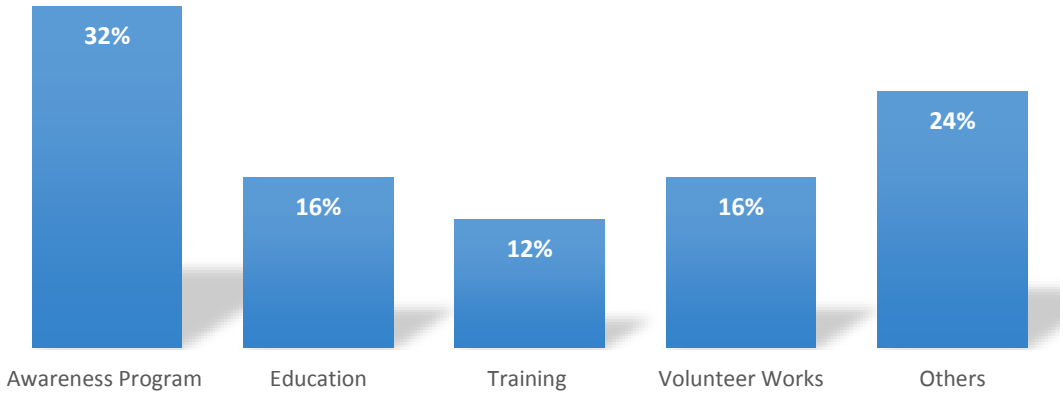

Figure 4.9. Community Effort

The results from participants indicate that 32% were involved in raising awareness program, 28% in education and training, and 16% in volunteer works such as the KRT Committee. However, 24% of participants reported that they did nothing about the information. The positive factor is an indication from the results that almost of participants had at some point in their lives been involved in community awareness programs. Furthermore, the participant was been questioned about the perception related does the community involvement can affect the local community decision. Table 4.4 shown the result of community perception towards community involvement.

Table 4.4.

Community Perception

Question	Means Score	Interpretation Level
Do you think that public participation can influence any major community decisions in the area around risk management issue?	3.51	High

Based on Table 4.4, the participant highly believe that public participation can influence many major community decisions in the area around risk management issue.

4.5 Community Organization Practices

In order to know the community organization (KRT committee) practices that had been done to increase the emergency preparedness of community, Interview with KRT committee had been done. The KRT committee mentioned that there is several practice that had been done such as;

i. Emergency number board shown in Figure 4.10.

Figure 4.10. Emergency Number Board

ii. Facilities to conduct meeting with community of Taman Balok Perdana;

Based on the interview, the KRT committee told that the community organization of Taman Balok Perdana had a "Balai Raya" that currently be used by the KRT member as the center of information and a place that be used in order to do community meeting.

Community representatives should actively seek information concerning hazardous installations. These representatives should also be identified to hazardous installations and public authorities, so that information can be provided. When there is no current information provided, there is no specific practices that focus on the community preparedness towards major accident event was done. The practices that had been done is only focuses on general accident that may occur in the residential area only such as fire, robbery and others. Even though KRT organization itself do not done any practices in order to increase the community preparedness towards major accident event. Last 4 years, there was several community meeting that had been done by the stakeholders to give information to public regarding their operation of company and convince them that the community area will be safe.

4.5.1 Resident Participation

As I had been mentioned KRT organization do not done any practices that focused on community preparedness towards major accident events. However the KRT committee realize that the important of those practices. The inclusion of the community during the preparedness phase is important in order to provide safety measures which can be adopted during emergency situations and also to provide the community with information on available documents related to major accident events (Mahony, 2008). The study seeks to encourage the local authority target awareness initiatives that are integrated to include public participation. However in order to do the practices such as community meeting, drilling and others, the KRT committee detect that there will be divide into two limitation. First from the stakeholders and second from the attitude of the resident.

4.6 Decision Process of Community Leader

According to official at NIDM, community leaders should be approached for mobilising community to optimize use of social capital for reducing disaster by preparing the community to take timely actions. It was also suggested to utilize the existing indigenous capacity and skills of people through community. Based on the result of focus group discussion, KRT organization was responsible to lead the residents of Taman Balok Perdana. According to the chairmain of KRT committee, if the major accident event occur, he will inform to the military and Police Patrol & Armed Forces (RAPAT). After that, military and RAPAT will be incharge to contact fire department. As for the spread information, the KRT committee will inform the others resident of Taman Balok Perdana. The KRT committee will spread the information related to major accident events using application whatsapp. As the resident in Taman Balok Perdana was divided into 4 phase which each phase has their representative who also a member of KRT organization. So the information will share widely to the resident. It supported by several point in APELL handbook that industry programs for responsible and safer management have greatly increased, and the distribution of information and communication technologies have changed the way in which community members engage in preparedness activities regardless of the risks they face.

CHAPTER 5

CONCLUSION AND RECOMENDATION

5.1 Introduction

This chapter is the final chapter of this thesis. The conclusion part will summarize each objective briefly and its finding and ultimately give the conclusion of whole thesis. Meanwhile, the recommendation part is the part where there could give better improvement suggested for the benefit of the community in term of community preparedness.

5.2 Conclusion

Based on the first objective of the research which is to measure the level of community awareness and knowledge towards major accident hazard that may impact their residential area, the findings the mean score of the participant was had high and moderate awareness and knowledge related to major accident hazard. However mean score of people who are not sure with evacuation procedure, contingency plan for chemical explosion and early warning system are moderate. It showed that the community though that they know exactly on what they need to do if the major accident occur but the reality was they are not really know the exactly plan and procedure that they need to follow during emergency. However information on major accident hazard are not prevalence so how the community should respond during an emergency is still needed for Taman Balok Perdana residents. The

results from the questionnaire presented, clearly indicate that not much has been done by the community leader to educate the community of resident regarding major accident hazards. This clearly indicates that there are no proper preparedness plans in place to be activated in case of major accident events occur and the community leader also only depending on local authority to do the action.

Furthermore, based on the focus group discussion for the community existing practices towards emergency preparedness show the result is very low. As there was no focus practices regarding major accident events. Even though half of the community had high knowledge but still the function community leader to provide a good practices to increase the community preparedness may not be adequately. The study then concludes that Taman Balok Perdana residents are not ready to respond properly in case of major accidents events occur. Besides that, for the last objectives the community leader only will contact the local authority that involved and follow the instruction that will be inform by the local authority such as BOMBA, police and others without their own initiative to perform their own evacuation plan.

5.3 Recommendation

It is important to prepare for major accidents events emergencies in order to withstand community if they occur. Therefore community preparedness is an essential phase for emergencies. This includes the enhancement of an overall preparedness strategy, policy, institutional structure, warning and forecasting capabilities, and plans that define measures geared to helping at-risk communities safeguard their lives and assets by being alert to hazards and taking appropriate action in the face of imminent threat. The following are the recommendation;

5.3.1 Awareness Campaign

Communication underlies the work of the preparedness phase. Evidence suggests that well-designed public education initiatives increase public hazard knowledge and warning responsiveness (McEntire & Myers, 2004). Public education should be done by organising community meetings or awareness campaign. The community should be encouraged to gather information and put it to use while they learn to work together. At this stage information should be collected about the resources available to respond to major accident event emergencies.

Furthermore, signage plays a critical role in increasing public awareness of hazards and maximizing effectiveness of early warning systems. Signs and maps showing hazard zones and evacuation routes and safe zones should be used. Agreed and widely distributed evacuation maps are a requirement for public awareness (Wells, 2013).

Besides that, training and education is of the utmost importance. KRT organization needs to promote emergency management by incorporating information on major accident hazard into community meeting. They should develop educational and training programs that will focus on preparedness strategies and early warning systems to be employed in the area for major accident hazards. Ways the municipality can use to measure the effectiveness of awareness campaigns:

i Check the population of the community and how many are reached by balancing the representation of different age groups;
ii Organize evacuation drills/simulation exercises which will involve different stakeholders in the community.

5.3.2 Involvement of the Community and Stakeholder

The municipality should ensure a broader stakeholder participation in disaster management by involving the industries, other NGO's and the general public. Public confidence in a community's emergency plans may increase when the community members are assured that everyone are being included in a credible planning process and the resulting plans correspond to the community's specific needs (Madan and Routray, 2015) Involvement of an at-risk community in defining learning about and testing appropriate resources for preparedness and response will forge a good relationship between the local authorities, the industry and the community at large.

5.3.3 Contingency Plan

A contingency plan can be prepare in order to respond to emergencies involving major accident can be considered as a fundamental step for preparedness in Taman Balok Perdana. The plan should be reviewed, exercised and updated annually. The plan should include procedures for an immediate response to a chemical accident, public notification of evacuation or shelter-in-place procedures and timetables for testing and updating of the plan. Studies have found that communities with chemical disaster emergency plans, even deficient ones, responded in a more coordinated and effective way to chemical emergencies than those without plans. These plans sometimes prevented minor threatening incidents from escalating into seriously damaging catastrophes (Stevens, 1998).

5.3.4 Community Based Disaster Risk Management (CBDRM)

CBDRM is a process of disaster risk management in which at risk communities are actively engaged in the identification, analysis, treatment, monitoring and evaluation of disaster risks in order to reduce their vulnerabilities and enhance their capacities. This means that the people are at the heart of decision making and implementation of disaster risk management activities. (Madan & Routray, 2015) Furthermore, a CBDRM approach

responds to local problems and needs, capitalizes on local knowledge and expertise, improves the likelihood of sustainability through genuine ‘ownership’ of strengthens community technical and organizational capacities, and empowers people by enabling them to tackle these and other challenges.

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APPENDIX A

GANTT CHART FOR FYP 1

ACTIVITIES	WEEKS													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Project title														
Research Problem														
Research Objective														
Conceptual framework														
Develop methodology														
Develop literature review														
References														
Submit Proposal														
Presentation														

APPENDIX A

GANTT CHART FOR FYP 2

ACTIVITIES	WEEKS													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Distribution of Questionnaire														
Interview														
Data Analysis														
Result														
Develop Full Thesis														
Develop Literature Review														
References														
Submit Thesis														
Presentation														

APPENDIX B

A STUDY ON COMMUNITY PREPAREDNESS TOWARDS MAJOR ACCIDENT EVENT IN GEBENG INDUSTRIAL AREA KUANTAN

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Purpose of Research:

1. To determine the level of community awareness and their knowledge towards major accident hazard that may impact the residential area

Note:

1. Your participitation in this research project is completely voluntary
2. The information will be treated strictly confidential. All information will not be used for any
purpose except for academic purpose only.

Definition

Major Accident Events

Major accident hazard is an occurrence in particular major emission, fire or explosion resulting from uncontrolled development in industrial activity and it is involving one or more hazardous substance which give serious danger to persons or environment.

SECTION A: SOCIO-DEMOGRAPHY

Please indicate answer with √

1. Gender	Male	Tick
	Female	
2. Age	Less than 18	
	18-25	
	26-35	
	36-45	
	46-55	
	Above 56	
3. Level of Education	Primary	
	Secondary	
	Tertiary Education	
	None	
4. How long you have been living in Taman Balok Perdana?	0-5 years	
	6-15 years	
	16-25 years	
	More than 25 years	
5. What is your current employment status?	Full time employment	
	Part time employment	
	Unemployed/looking for work	
	Unemployed/not looking for work	
	Student	
	Retired	
	Other	
6. Do you work at the Gebeng Industrial Area?	Yes	
	No	

SECTION B: AWARENESS AND KNOWLEDGE

On a scale of 1-5, states the extent of your awareness toward major accident evens.

1. Poor
2. Fair
3. Not Sure
4. Good
5. Excellent

Your awareness & knowledge toward major accident events:	1	2	3	4	5
7. How would you rate your knowledge of major accident events?					
8. Do you know what to do if the major accident occur?					
9. Is there any awareness program that has been conducted in your area					
10. Are you aware of early warning system in case of chemical explosion/fire?					
11. Are you aware of any preparedness/contingency plan developed for chemical explosion?					
12. Are you aware of any evacuation procedure in case of major accident events?					
13. Do you think that public participitation can influence any major community decisions in the area around risk management issue?					
14. Do you think that meetings around education related to major accident preparedness should be done?					
15. Will you attend such meeting?					
16. Has there been any major accident event occur in industrial area of Gebeng?					
17. Do you know the emergency services number?	Yes				
	No				
18. Is there any distribution of information related to the actions that the local community has to make if major accidents occur?	Yes				
	No				
19. How did you know about major accident events that may occur in your residential area?	Training				
	Media awareness				
	Community meeting				
	other				
20. How do you get involvement in these issue?	Awareness				
	Education				
	Training				
	Volunteer work				
	Others				

APPENDIX C

CRONBACH'S ALPHA TEST

Case Processing Summary

		N	%
Cases	Valid	10	100.0
	Excluded	0	.0
	Total	10	100.0

Reliability Statistics

Cronbach's Alpha	N of Items
0.840	10

Item- Total Statistic

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
TAHAP PENGETAHUAN	21.10	33.211	.697	.811
Q8	20.70	35.789	.494	.829
Q9	22.30	33.344	.663	.813
Q10	22.20	37.733	.409	.836
Q11	21.80	32.622	.590	.820
Q12	21.60	30.489	.717	.805
Q13	20.20	31.733	.589	.821
Q14	19.80	32.844	.513	.830
Q15	22.50	35.167	.763	.814
Q16	22.00	41.111	.000	.864

APPENDIX D

STATISTICAL PACKAGE SOCIAL SCIENCE (SPSS) OUTPUT FOR QUESTIONNAIRE

Frequencies

		Gender	Age	Level of Education	How long you have been living in Taman Balok Perdana?	What is your current employment status?	Do you work at the Gebeng Industrial Area?
N	Valid	220	220	220	220	220	220
	Missing	0	0	0	0	0	0
Mean		1.53	3.38	2.71	2.28	2.46	1.56
Median		2.00	3.00	2.00	2.00	2.00	2.00
Mode		2	4	2	2	1	2
Std. Deviation		.500	1.446	.930	.907	1.574	.497
Variance		.250	2.091	.865	.822	2.478	.247
Minimum		1	1	1	1	1	1
Maximum		2	6	4	4	6	2

	How would you rate your knowledge of major accident events?	Do you know what to do if the major accident occur?	Is there any awareness program that has been conducted in your area	Are you aware of early warning system in case of chemical explosion/fire?	Are you aware of any preparedness/contingency plan developed for chemical explosion?
Valid	220	220	220	220	220
Missing	0	0	0	0	0
Mean	3.60	3.68	3.52	3.41	3.44
Median	4.00	4.00	4.00	4.00	4.00
Mode	4	4	4	4	4
Std. Variation	1.079	1.639	1.160	1.063	1.139
Variance	1.164	2.685	1.347	1.129	1.297
Minimum	1	1	1	1	1
Maximum	5	22	5	5	11

	Are you aware of any evacuation procedure in case of major accident events?	Do you think that public participation can influence any major community decisions in the area around risk management issue?	Do you think that meetings around education related to major accident preparedness should be done?	Will you attend such meeting?	Has there been any major accident event occur in industrial area of Gebeng?
Valid	220	220	220	220	220
Missing	0	0	0	0	0
Mean	3.40	3.51	3.55	3.38	3.56
Median	3.50	4.00	4.00	3.00	4.00
Mode	4	3	4	3	3
Std. Variation	1.009	1.058	1.026	1.170	1.675
Variance	1.017	1.119	1.053	1.368	2.805
Minimum	1	1	1	1	1
Maximum	5	5	5	5	22

	Do you know the emergency services number?	Is there any distribution of information related to the actions that the local community has to make if major accidents occur?	How did you know about major accident events that may occur in your residential area? (Training)	How did you know about major accident events that may occur in your residential area? (media)	How did you know about major accident events that may occur in your residential area? (Community Meeting)
Valid	220	220	220	220	220
Missing	0	0	0	0	0
Mean	1.07	1.28	1.87	1.75	1.72
Median	1.00	1.00	2.00	2.00	2.00
Mode	1	1	2	2	2
Std. Variation	.253	.449	.334	.434	1.456
Variance	.064	.201	.112	.188	2.121
Minimum	1	1	1	1	1
Maximum	2	2	2	2	22

	How did you know about major accident events that may occur in your residential area? (others)	How do you get involvement in these issue? (Awareness Program)	How do you get involvement in these issue? (Education)	How do you get involvement in these issue? (Training)	How do you get involvement in these issue? (Volunteer Work)	How do you get involvement in these issue? (Others)
Valid	220	220	220	220	220	220
Missing	0	0	0	0	0	0
Mean	1.73	1.68	1.84	1.88	1.84	1.75
Median	2.00	2.00	2.00	2.00	2.00	2.00
Mode	2	2	2	2	2	2
Std. Variation	.446	.467	.367	.324	.367	.431
Variance	.199	.218	.134	.105	.134	.186
Minimum	1	1	1	1	1	1
Maximum	2	2	2	2	2	2

Frequency Table

Level of Education

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	PRIMARY EDUCATION	10	4.5	4.5	4.5
	SECONDARY EDUCATION	106	48.2	48.2	52.7
	TERTIARY EDUCATION	42	19.1	19.1	71.8
	NONE	62	28.2	28.2	100.0
	Total	220	100.0	100.0	

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	MALE	103	46.8	46.8	46.8
	FEMALE	117	53.2	53.2	100.0
	Total	220	100.0	100.0	

Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	LESS THAN 18	27	12.3	12.3	12.3
	18-25	39	17.7	17.7	30.0
	26-35	47	21.4	21.4	51.4
	36-45	50	22.7	22.7	74.1
	46-55	44	20.0	20.0	94.1
	ABOVE 56	13	5.9	5.9	100.0
	Total	220	100.0	100.0	

Do you work at the Gebeng Industrial Area?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	96	43.6	43.6	43.6
	NO	124	56.4	56.4	100.0
	Total	220	100.0	100.0	

How long you have been living in Taman Balok Perdana?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0-5 YEARS	40	18.2	18.2	18.2
	6-15 YEARS	107	48.6	48.6	66.8
	16-25 YEARS	45	20.5	20.5	87.3
	MORE THAN 25	28	12.7	12.7	100.0
	Total	220	100.0	100.0	

What is your current employment status?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	FULL TIME EMPLOYMENT	105	47.7	47.7	47.7
	PART TIME EMPLOYMENT	11	5.0	5.0	52.7
	UNEMPLOYED	32	14.5	14.5	67.3
	STUDENT	49	22.3	22.3	89.5
	RETIRED	16	7.3	7.3	96.8
	OTHER	7	3.2	3.2	100.0
	Total	220	100.0	100.0	

How would you rate your knowledge of major accident events?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	POOR	10	4.5	4.5	4.5
	FAIR	25	11.4	11.4	15.9
	NOT SURE	55	25.0	25.0	40.9
	GOOD	84	38.2	38.2	79.1
	EXCELLENT	46	20.9	20.9	100.0
	Total	220	100.0	100.0	

Do you know what to do if the major accident occur?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	POOR	11	5.0	5.0	5.0
	FAIR	24	10.9	10.9	15.9
	NOT SURE	50	22.7	22.7	38.6
	GOOD	92	41.8	41.8	80.5
	EXCELLENT	42	19.1	19.1	99.5
	22	1	.5	.5	100.0
	Total	220	100.0	100.0	

Is there any awareness program that has been conducted in your area

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	POOR	17	7.7	7.7	7.7
	FAIR	23	10.5	10.5	18.2
	NOT SURE	55	25.0	25.0	43.2
	GOOD	79	35.9	35.9	79.1
	EXCELLENT	46	20.9	20.9	100.0
	Total	220	100.0	100.0	

Are you aware of early warning system in case of chemical explosion/fire?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	POOR	13	5.9	5.9	5.9
	FAIR	28	12.7	12.7	18.6
	NOT SURE	64	29.1	29.1	47.7
	GOOD	85	38.6	38.6	86.4
	EXCELLENT	30	13.6	13.6	100.0
	Total	220	100.0	100.0	

Are you aware of any preparedness/contingency plan developed for chemical explosion?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	POOR	13	5.9	5.9	5.9
	FAIR	22	10.0	10.0	15.9
	NOT SURE	74	33.6	33.6	49.5
	GOOD	84	38.2	38.2	87.7
	EXCELLENT	26	11.8	11.8	99.5
	Total	220	100.0	100.0	

Are you aware of any evacuation procedure in case of major accident events?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	POOR	13	5.9	5.9	5.9
	FAIR	21	9.5	9.5	15.5
	NOT SURE	76	34.5	34.5	50.0
	GOOD	85	38.6	38.6	88.6
	EXCELLENT	25	11.4	11.4	100.0
	Total	220	100.0	100.0	

Do you think that public participitation can influence any major community decisions in the area around risk management issue?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	POOR	10	4.5	4.5	4.5
	FAIR	23	10.5	10.5	15.0
	NOT SURE	73	33.2	33.2	48.2
	GOOD	72	32.7	32.7	80.9
	EXCELLENT	42	19.1	19.1	100.0
	Total	220	100.0	100.0	

Do you think that meetings around education related to major accident preparedness should be done?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	POOR	12	5.5	5.5	5.5
	FAIR	19	8.6	8.6	14.1
	NOT SURE	59	26.8	26.8	40.9
	GOOD	97	44.1	44.1	85.0
	EXCELLENT	33	15.0	15.0	100.0
	Total	220	100.0	100.0	

Will you attend such meeting?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	POOR	22	10.0	10.0	10.0
	FAIR	19	8.6	8.6	18.6
	NOT SURE	72	32.7	32.7	51.4
	GOOD	68	30.9	30.9	82.3
	EXCELLENT	39	17.7	17.7	100.0
	Total	220	100.0	100.0	

Has there been any major accident event occur in industrial area of Gebeng?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	POOR	19	8.6	8.6	8.6
	FAIR	11	5.0	5.0	13.6
	NOT SURE	77	35.0	35.0	48.6
	GOOD	71	32.3	32.3	80.9
	EXCELLENT	41	18.6	18.6	99.5
	22	1	.5	.5	100.0
	Total	220	100.0	100.0	

Do you know the emergency services number?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	205	93.2	93.2	93.2
	NO	15	6.8	6.8	100.0
	Total	220	100.0	100.0	

Is there any distribution of information related to the actions that the local community has to make if major accidents occur?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	159	72.3	72.3	72.3
	NO	61	27.7	27.7	100.0
	Total	220	100.0	100.0	

How did you know about major accident events that may occur in your residential area? (Training)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	TICKED	28	12.7	12.7	12.7
	NOT TICKED	192	87.3	87.3	100.0
	Total	220	100.0	100.0	

How did you know about major accident events that may occur in your residential area? (Media)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	TICKED	55	25.0	25.0	25.0
	NOT TICKED	165	75.0	75.0	100.0
	Total	220	100.0	100.0	

How did you know about major accident events that may occur in your residential area? (Community Meeting)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	TICKED	82	37.3	37.3	37.3
	NOT TICKED	137	62.3	62.3	99.5
	Total	220	100.0	100.0	

How did you know about major accident events that may occur in your residential area? (Others)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	TICKED	60	27.3	27.3	27.3
	NOT TICKED	160	72.7	72.7	100.0
	Total	220	100.0	100.0	

How do you get involvement in these issue? (Awareness Program)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	TICKED	70	31.8	31.8	31.8
	NOT TICKED	150	68.2	68.2	100.0
	Total	220	100.0	100.0	

How do you get involvement in these issue? (Education)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	TICKED	35	15.9	15.9	15.9
	NOT TICKED	185	84.1	84.1	100.0
	Total	220	100.0	100.0	

How do you get involvement in these issue? (Training)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	TICKED	26	11.8	11.8	11.8
	NOT TICKED	194	88.2	88.2	100.0
	Total	220	100.0	100.0	

How do you get involvement in these issue? (Volunteer Work)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	TICKED	35	15.9	15.9	15.9
	NOT TICKED	185	84.1	84.1	100.0
	Total	220	100.0	100.0	

How do you get involvement in these issue? (Others)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	TICKED	54	24.5	24.5	24.5
	NOT TICKED	166	75.5	75.5	100.0
	Total	220	100.0	100.0	

APPENDIX E

INTERVIEW TRANSCRIPTION

PERBINCANGAN KUMPULAN SECARA BERFOKUS

BAHAGIAN 1: MAKLUMAT UMUM

1. **Apakah jawatan anda di dalam Kejiranan Rukun Tetengga?**
   Pengerusi KRT

2. **Berapa lamakah anda menjawat jawatan tersebut?**
   2 tahun

3. **Apakah peranan anda dalam KRT?**

   Peranan saya adalah memastikan organisasi berguna kepada masyarakat Taman Balok Perdana dengan mengadakan pelbagai aktiviti kepada masyarakat

BAHAGIAN 2: KEPUTUSAN TINDAK BALAS KECEMASAN YANG DILAKUKAN SEMASA PERISTIWA KEMALANGAN UTAMA BERLAKU.

4. **Sekiranya kemalangan seperti letupan, kebakaran , tumpahan dan pembebasan bahan bahaya berlaku, adakah terdapat langkah awal yang diambil oleh ketua masyarakat untuk menghadapi situasi begini?**

   Sekiranya kemalangan berlaku, saya selaku pengerusi KRT akan memaklumkan kepada tentera dan pasukan rondaan awam polis & angkatan tentera (RAPAT) akan bertindak dalam menghubungi pihak bomba dan sebagainya. Bagi penyampaian maklumat kemalangan terhadap penduduk, AJK KRT terbahagi kepada wakil bagi 4

fasa pembangunan yang berlaku di taman perumahan balok perdana setiap fasa mempunyai kumpulan whatsapp yang sendiri iaitu kumpulan ukhuwah A , B , C dan D. Penyampaian maklumat kemalangan akan dikongsi di setiap kumpulan group whatsapp bagi dihebahkan kepada yang lain. Disamping itu, pihak bomba akan membunyikan siren dan membuat pengumuman kemalangan di kawasan perumahan bagi memaklumkan kepada penduduk.

BAHAGIAN 3: LATIHAN KRT

5. **Adakah KRT telah mempunyai sebarang latihan yang telah dilakukan untuk meningkatkan kesiapsiagaan masyarakat dalam menghadapi peristiwa kemalangan utama? (Jika tidak, adakah mereka merasakan ia adalah penting untuk mempunyai perancangan latihan dan jika ya apakah latihan tersebut?**

   Tidak terdapat sebarang latihan yang dilakukan oleh pihak KRT sendiri. Namun pihak KRT sedar akan bahaya yang boleh berlaku kepada penduduk dan merasakan latihan untuk meningkatkan kesiapsiagaan masyarakat ini penting kerana wujudnya kilang kilang yang memproses/menyimpan bahan-bahan yang merbahaya.Namun, latihan tidak dapat dilakukan kerana pihak KRT berpendapat ia memerlukan penglibatan dari pelbagai pihak seperti bomba, GEMA, dan badan NGO yang lain bagi memastikan penyampaian maklumat dan latihan bagi kesiapsiagaan masyarakat dilakukan oleh pertubuhan yang bertanggungjawab. Namun terdapat juga usaha yang dilakukan oleh pihak KRT untuk meningkatkan kesiapsiagaan masyarakat seperti meletakkan papan tanda yang meletakkan nombor telefon yang perlu dihubungi sekiranya berlaku kecemasan. Disamping terdapat juga pusat khidmat dan balai raya untuk berkumpul bagi AJK KRT untuk berbincang sekiranya berlaku sebarang kemalangan.

6. **Siapakah yang terlibat dalam latihan tersebut?**

   AJK KRT, RAPAT

7. **Adakah penduduk akan menyertai dan memberi sokongan terhadap latihan tersebut?**

   Tidak semua penduduk akan memberi kerjasama sekiranya terdapat latihan yang dilakukan.

8. **Apakah batasan untuk KRT dalam melaksanakan latihan untuk meningkatkan kesiapsiagaan masyarakat?**

   Batasan untuk melakukan latihan bagi meningkatkan kesiapsiagaan bagi masyarakat terbahagi kepada dua iaitu dari pihak berkepentingan lain dan masyarakat sendiri . Batasan bagi dari pihak berkepentingan lain ialah apabila pihak bertanggungjwab tersebut sendiri tidak mempunyai kakitangan yang cukup untuk melaksanakan program kesedaran tersebut . Bagi dari segi masyarakat sendiri, batasan bagi menjayakan sesuatu latihan adalah dari kerana sikap penduduk sendiri yang merasakan latihan itu tidak penting dan kebanyakan penduduk bekerja dalam pelbagai bidang sama ada dalam perindustrian, awam dan sebagainya yang menyebabkan masyarakat mempunyai kekangan masa untuk menyertai sebarang latihan/program yang dilakukan oleh KRT.

BAHAGIAN 4: HUBUNGAN BERSAMA DENGAN PIHAK BERKEPENTINGAN LAIN

9. **Adakah KRT mempunyai hubungan dengan pihak berkepentingan lain seperti pihak berkuasa tempatan, NGO industri atau lain-lain?**

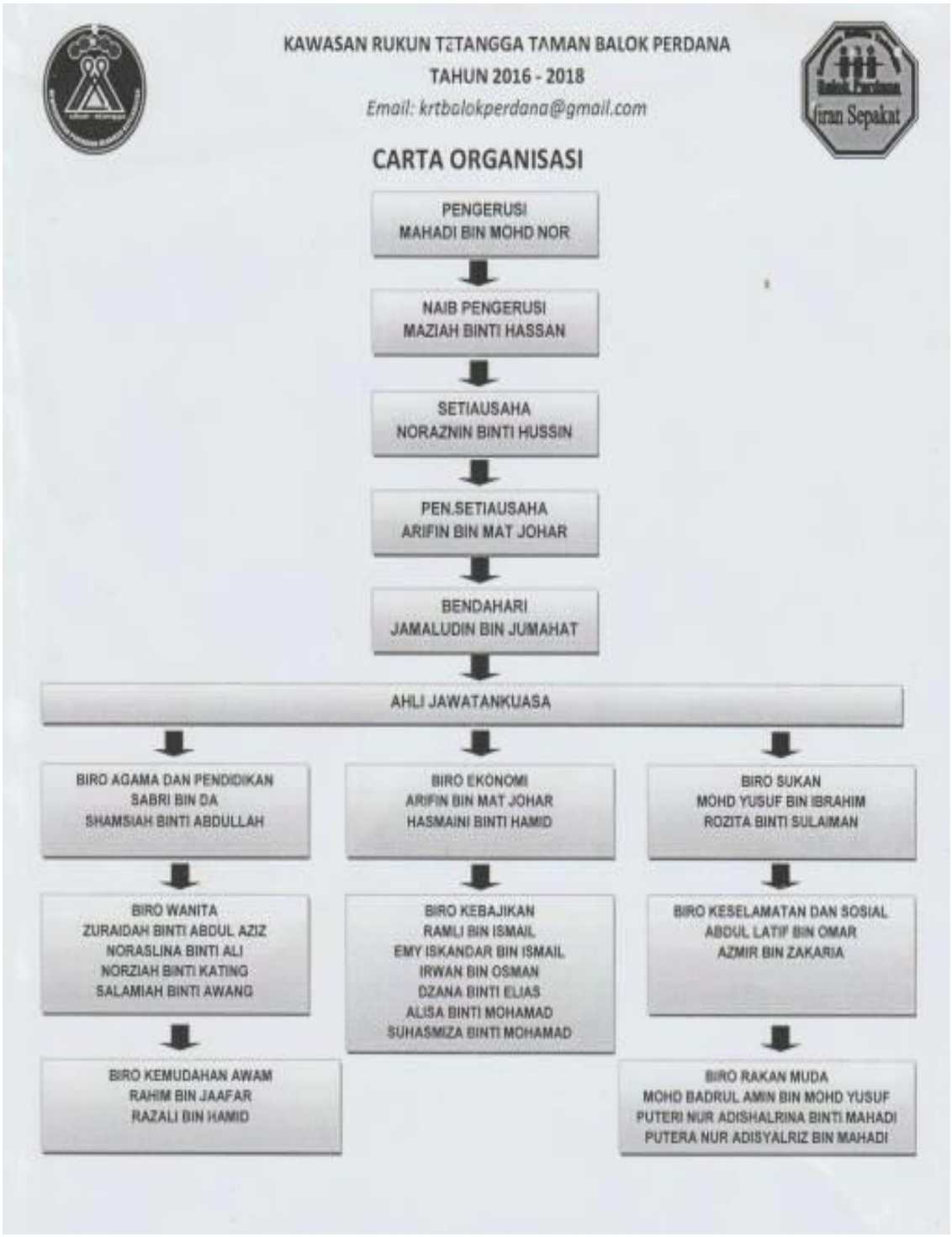
   Ada, dimana waktu itu permulaan pembukaan syarikat seperti LYNAS dan MCIKP iaitu pada 4 tahun yang lalu. Waktu ini pihak syarikat sendiri turun padang bagi memberi penerangan dan pendedahan kepada masyarakat berkaitan dengan operasi kilang dan meyakinkan masyarakat bahawa operasi kilang tidak akan membahayakan masyarakat sekitar.

10. **Jika ya, apakah terdapat kerjasama yang telah dilakukan antara komuniti dan pihak berkepentingan dalam keadaan kecemasan?**

    Namun tidak terdapat sebarang kerjasama yang dilakukan antara komuniti dan pihak berkepentingan dalam keadaan kecemasan.

APPENDIX F

KRT ORGANIZATIONAL CHART



APPENDIX G

EXAMPLE OF INFORMATION TO PUBLIC

8	TINDAKAN OLEH KAKITANGAN SYARIKAT LAIN YANG BERHAMPIRAN SERTA ORANG AWAM DI SEKELILING

ORANG AWAM	
Tenang	JANGAN PANIK apabila dimaklumkan tentang keadaan kecemasan.
Peka	Sentiasa bersedia terhadap arahan dan amaran dari pihak berkuasa atau kakitangan Petron
Berlindung ditempat selamat	Duduk dan tunggu di dalam rumah atau tempat yang selamat seperti yang di tentukan pihak berkuasa sehingga arahan seterusnya.
Bekerjasama	Berikan kerjasama sepenuhnya kepada arahan-arahan dari pihak berkuasa.
Larangan	Jangan menghampiri tapak kecemasan kerana ia boleh mendatangkan risiko kepada nyawa anda.
	Jangan menelefon untuk mendapat apa-apa maklumat dari Terminal sehingga kecemasan tamat.
KAKITANGAN KILANG SEKITAR	
Tunggu	Petron akan memaklumkan kepada syarikat bersebelahan terdekat melalui saluran komunikasi yang sedia ada.
Bersiap-sedia	Bersedia untuk evakuasi jika diarahkan oleh pihak berkuasa.
Kerjasama	Menggerakkan pasukan melawan kebakaran sendiri jika kecemasan merebak ke kemudahan luar dan berikan kerjasama sekiranya diminta oleh pihak berkuasa atau melalui Perjanjian Kerjasama Kecemasan Gebeng (Gebeng Emergency Mutual Aid – GEMA)

9	MAKLUMAT PERSEDIAAN DAN BIDANG TUGAS KECEMASAN

PERKARA	KETERANGAN
Pasukan Pengurusan Krisis	Pihak Atasan Petron yang mengurukan krisis, menyediakan kemudahan dan Komunikasi dengan pihak dalaman atau luaran.
Pasukan Tindakan Kecemasan di Terminal	Pasukan yang terdiri daripada kakitangan Terminal Petron yang terlatih bagi mengawal kecemasan.
Pelan Tindakan Kecemasan (ERP)	Pelan tindakan kecemasan yang akan diaktifkan apabila kecemasan berlaku di tapak
Alat Pengesan Kebakaran	Alat pengesan kebakaran, sistem penggera manual atau automatik dipasangkan di lokasi strategik di kawasan Terminal. Alat penggera kebakaran juga disambungkan ke Balai Bomba dan Penyelamat Negeri Pahang.

PERKARA	KETERANGAN
Alat Melawan Kebakaran	Peralatan melawan kebakaran telah di sediakan di seluruh Terminal, seperti pam, pili bomba, hos api, sistem pancutan busa dan sistem buas.

10	MAKLUMAT LANJUT DAN HAL-HAL LAIN

PERKARA	DEFINASI
PFISB	Petron Fuel International Sdn Bhd
Pihak Berkuasa	Polis, BOMBA, JKKP, JAS, Majlis Perbandaran, Organisasi GEMA, LPK, MKN
JKKP	Jabatan Kesihatan dan Keselamatan Pekerjaan
JAS	Jabatan Alam Sekitar
LPK	Lembaga Pelabuhan Kuantan
KPC	Kuantan Port Consortium
MKN	Majlis Keselamatan Negara
GEMA	Gebeng Emergency Mutual Aid
ERP	Pelan Tindakan Kecemasan

11	SILA HUBUNGI JIKA KECEMASAN

PENGURUS TERMINAL HAZRI HASAN 012-3130857
PENOLONG PENGURUS TERMINAL MOHD SAIFULDIN MUDA 012-350 9047
PETRON HQ, MENARA I&P, KUALA LUMPUR 03-2082 8400

12	UNTUK KETERANGAN LANJUT SILA HUBUNGI:

PETRON FUEL INTERNATIONAL SDN BHD (PFISB)

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