

## FACTORS INFLUENCING THE FLOOD VICTIM'S LEVEL OF PERCEPTION TOWARDS RESOURCES COORDINATION AT KUBANG TERAP, PASIR MAS, KELANTAN, MALAYSIA

Jimisiah Jaafar<sup>1</sup>, Zainur Shuhada Mohd Zaidi<sup>2</sup>, Rohaizan Ahmad<sup>3</sup>, Sallaudin Hassan<sup>4</sup>, Irwan Sagir<sup>5</sup> Rosimah Ahmad<sup>6</sup>  
<sup>1,2,3,4</sup> Malaysian Institute of Industrial Technology (UniKL MITEC), Universiti Kuala Lumpur, Masai, Johor,

Malaysia

<sup>5</sup> Kolej Komuniti Masjid Tanah, Paya Rumput, 78300 Masjid Tanah, Melaka

<sup>6</sup> Taylor's University, LakeSide Campus, No. 1, Jalan Taylor's, 47500 Subang Jaya, Selangor Darul Ehsan.

jimisiah@unikl.edu.my

### ABSTRACT

This research focused on the factors influencing the flood victim level of perception towards resources coordination at Kubang Terap, Pasir Mas, Kelantan. Flood hit Kelantan from December 2014 to January 2015. This disaster has become the worst flood to hit Kelantan since 1976. It has caused severe damages in Kelantan and the flood is well-known among the locals as "Bah Merah". It was the largest flood recorded in the history of Kelantan. The issue on the resources coordination has become the main problem faced by the locals' flood victims due to inadequate resources of foods and clothes when these victims were placed at the evacuation centre. The resources are insufficient to cover the number of victims in the evacuation centre. Therefore, this study aimed to identify the flood victim's level of perception in resources coordination and factors that influence the efficiency of the resources coordination. In this study, the researcher utilized quantitative method of analysis to collect data. The collection of the data was based on the distribution of questionnaire to 357 respondents. The respondents were locals from Kubang Terap, Pasir Mas, Kelantan. The results of this research found that funding, routing and scheduling, and transportation are significant factors for resources coordination as it provides assistance to the flood victims.

**Keywords:** Flood, Flood Victim's, Flood Recourses, Flood Coordination

### 1.0 INTRODUCTION

This study is conducted in order to get the insight on the effectiveness of resources coordination management in Malaysia in the case of natural disasters. In Malaysia, there are several authorities or agencies involved and responsible for the flood management namely National Security Council (NSC), Police Department, Fire and Rescue Department, Civil Defence Department, Welfare Department and Public Works Department.

In recent years, the occurrences of natural disasters especially flood in Malaysia is quite frequent and had given significant impact to the locals in term of social life and economics. In Malaysia, the flood occurs due to climatic condition. Commonly, the rain monsoon during months of November to February has caused the flood which consequently affected the lives of people especially in east coast of Peninsular Malaysia.

In Malaysia, the authorities that responsible in making managerial decision and coordination is National Security Council (NSC). The decision and coordination are based on Directive No. 20

manual. This manual acts as guidelines in management of disasters including the functions and responsibilities of other various agencies.

There are several states in Malaysia such as Kelantan, Terengganu, Pahang and Johor had been affected by flood due to the occurrences of east monsoon between November to February. During the months, there were unpredictable heavy rain which affected all local social and economy activities around the states. According to Datuk Mohamad Thajudeen, Secretary of National Security Council (NSC), they have identified that the main reasons of the flood was due to the changing climatic patterns and adverse weather effect. Hence, the flood occurred could be the result of uncontrolled land management and swelling number of trees and exploitation of land resources.

The worst flood had hit Kelantan state in 2014. The conditions of all victims were so chaotic due to slow of rescue and inadequate supplies. Besides, the utility such as water and electricity was cut off in most areas in Kelantan due to the level of the flood was in danger condition. The telecommunications services were also not in coverage. The flood victims had difficulties to get signal in order to ask for help. Based on National Security Council, the flood hit in Kelantan required immediate attention and helped from central of government as the condition is at level two.

Therefore, this research is intended to determine the flood victim's level of perception in resources coordination and factors that influence the efficiency of the resources coordination. With the finding that is gained from this research enable to assist and further improve the plan and emergency relief operation plus to assist the authorities to have the contingency plan in managing the flood.

## **2. PROBLEM STATEMENT**

The flood disaster which occurred in Kelantan during end of December 2014 was described as the worst floods in decades. There were more than 200,000 locals affected by the flood and were placed at the evacuation centre[1]. According to the Major Evacuation Center Guideline, evacuation centre is a centre which provides affected people with basic human needs including shelter, food and water.

However, during the occurrences of the flood in Kelantan, there were many local victims claimed that they did not get adequate resources such as foods and clothes when they were placed at the evacuation centre. The resources are insufficient to cover the number of people in the evacuation centre. Previously, the resources prepared in the evacuation centre are based on the number of flood victims. The insufficient of the resources distributed to the flood victims is due to the unexpected flood and lack of planning in managing the resources from the authorities.

Based on prior research, resource coordination is highly influenced by the distribution of supply [2]. Therefore, it is important to take note that, the delay from the distributor for the food and clothes would eventually delay and hinder the resources coordination from being effective. In terms of resources management, the main issue that caused ineffectiveness in distributing the resources to the flood victims was due to lack of engagement between the Malaysian flood authorities and local communities [3]. Therefore, this has caused a delay in getting accurate information in relation to the number of locals who was affected, the time and location of the resource distribution. Consequently, this led to insufficient of resources to the local flood victims.

### **3. OBJECTIVES OF THE STUDY**

- i. To identify the flood victim's level of perception on resources coordination by the local authorities
- ii. To identify the factors influencing the effectiveness of resources coordination to the flood victims

### **4. RESEARCH QUESTIONS**

- i. What is the flood victim's level of perception in resources coordination?
- ii. What are the factors that influencing the effectiveness of resources coordination?

### **5. SIGNIFICANCE OF THE STUDY**

This study has significant contribution in terms of providing insights from the flood victims' perspectives on the resources coordination practices implemented by the relevant authorities in managing and handling resources for the flood victims. In addition, this study also provides the local authorities information on the factors that influence the effectiveness of resource coordination for further improvement in the future.

### **6. LITERATURE REVIEW**

According to previous researcher, the perception is influenced by the environmental changes, whether they occur directly or indirectly [4]. Generally, the victims would try their best to link the flood situation to changes that occurred in their environment [5]. Besides, information from third parties, the role of media or technology and become too emotional in feelings have strongly influenced the perception of the individual [6]. The flood victims would become emotional when the issue of flood comes out. This is because the unexpected high flood situation has caused them to suffer trauma. Hence, the insufficient of resources during the flood had made them feeling emotional and dissatisfied with the coordination by the authority and non-organizational party.

According to [3], the climatic changes, technological and economic developments that have changed the physical infrastructure of the earth, have now cause floods to occur anywhere without warning. A natural phenomenon might seem like the immediate trigger, but in reality, this is caused by human activity. Among various kinds of disasters, flooding is unique in the sense that it has a very high degree of predictability, both in the short term, as well as long term.

Generally, the main factor of flood event is rainfall and other factors are intensity and duration of rainfall, the wetness of the ground and the response of the rainfall catchment. Flood occurrence in Kelantan has given impacts towards human life and socio economic. Due to monsoon rainfalls and climatic change issues, Kelantan River has been affected with flood.

Hence, flood has given significant impact to the environment, economy and individuals. The resources cannot be distributed if there is any interruption from external environment. The distribution would be delayed due to the lack of access. Apart from that, the success of disaster relief operations depends on the quality of local resources, who are the first responders to immediate needs when outside assistance is still being mobilized. The quality of local response depends on the effectiveness of the plan that governs their deployment and usage [7]. Therefore, it is important to take note that in

order to ensure the resources can be effectively distributed; the manpower, management and authorities planning are important factors in ensuring the effectiveness of resource distribution to the flood victims.

The unpredictable flood at Kelantan 2014 has caused many challenges. Handling of resources or rescue equipment requires manpower to ensure the operational part during or after disaster is successful. Generally governments, military, civil society, and humanitarian organizations are responsible for undertaking such emergency relief operations [8].

The term distribution can be defined as flow of resources from warehouses or medical centres to the affected areas [9]. The distribution provides relief in the form of food, medicines, shelters and other related relief resources to wounded people. By efficient planning in distribution, maximum relief distribution can be achieved. Demand variations, link and facility demand and shortages in resources are other uncertainties in post disaster environments, he also added the relief distributions are time and cost dependent. Funding becomes more competitive among organizations, humanitarian logistics units will face increasing pressure to measure and justify their costs and seek lower costs but higher-quality alternatives [7].

Last but not least, transportations are important and an element of logistic chain that makes it possible for assistance to arrive at the site where it is required which is the movement of the supply within the country. The effective operation of emergency logistics should be quick response in order to make sure the affected area receive the supply timely and accurately during disaster or after the disasters. Therefore, the urgent supply service must be delivered to the affected areas as quickly as possible. The planning towards routing for emergency transport is critical in humanitarian mission. In order to make sure the rescue team saves more live and properties, the time management are important [10].

## **7. RESEARCH METHODOLOGY**

This research utilized quantitative research methodology. A set of survey questionnaire was designed based on the research questions. The questionnaires were divided into three sections namely Section A: Respondents' Background Information, Section B: Respondents' Responses on the Resources Coordination by the Relevant Authorities. The questionnaires were randomly distributed to 357 respondents from the total population 4662 of Mukim Kubang Terap, Pasir Mas Kelantan (based on Department of Statistics Malaysia). The selection of sampling is based on Krejchie and Morgan 1970. The data gained were computed and analysed by using statistical analysis.

## **8. CONCEPTUAL FRAMEWORK**

Conceptual framework the study as shown in Figure 1 below.

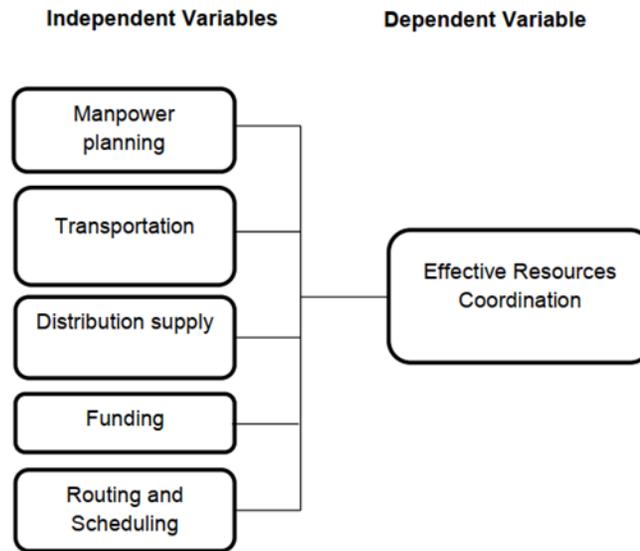


Figure 1: Conceptual Framework

## 9. RESULT AND DISCUSSION

This section is basically discussed on the respondents' responses towards the questionnaire. The discussion focused more the respondents' responses/perceptions on resources coordination and the factors that influence resources coordination effectiveness.

### I. Respondent's gender distribution

Figure 2 illustrates respondent's gender distribution. Based on the chart, it indicated that majority of the respondents are male which consisted of 183 (51%) of total respondents. The remaining of 174 (49%) respondents are female.

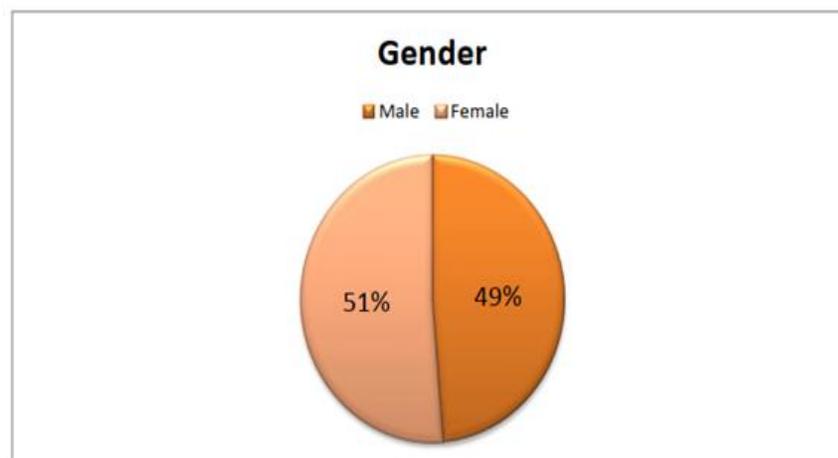


Figure 2: Respondent's Gender

## II. Respondent's age distribution

Based on the Figure 4.2, there are five groups of age that has been categorized by researcher. The chart shows 46 to 55 years is the highest respondents which is 96 (26.9%). The lowest respondents of the age are 56 years and above which is 47 (13.2%). These show that the age from 46 to 55 years majority age at the study area.

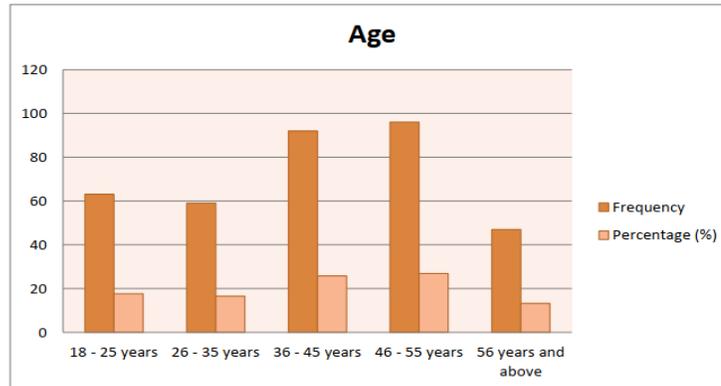


Figure 3: Respondent's Age

## III. Respondents' employment by sectors

Figure 4.3 below show the employment by sectors at Kampung Kubang Terap. The employment sectors have been categorized in four groups which are students, government, private and self-employed. The most contributed employment sectors in this research are self-employed. Self-employed has 131(36.7%) private sector 128 (35.9%). Government sectors 54 (15.1%) and students is the lowest in the sectors which is 44 (12.3%). The percentage in self-employed is highest because most the flood victims at Kampung Kubang Terap has their own occupation such as small entrepreneurs, farmers and others.

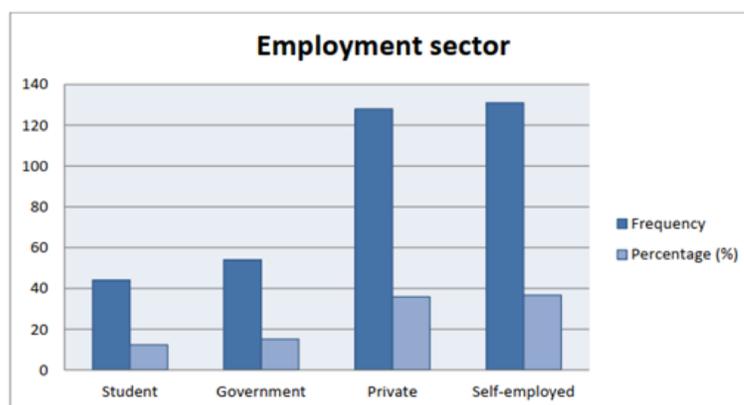


Figure 4: Respondents' Employment by Sectors

**IV. Respondent's level of perception**

Table 1: Respondent's Level of Perception

No	Question	Strongly Disagree		Disagree		Moderate		Agree		Strongly Agree	
		Fre	%	Fre	%	Fre	%	Fre	%	Fre	%
	<b>Manpower planning</b>										
1	Rescue team were on the scene on time.	25	7.0	144	40.3	69	19.3	108	30.3	11	3.1
2	Rescue team were available when needed.	40	11.2	111	31.1	99	27.7	98	27.5	9	2.5
3	The availability of manpower in handling the resources.	21	5.9	134	37.5	91	25.5	98	27.5	13	3.6
4	All rescue operations were manageable.	41	11.5	106	29.4	96	26.9	95	26.6	20	5.6
5	Manpower capacity at affected area was sufficient to help victims.	20	5.6	132	37.0	63	17.6	117	32.8	25	7.0
	<b>Distribution of supply</b>										
6	The availability of emergency supply.	21	5.9	120	33.6	91	25.5	113	31.7	12	3.4
7	Emergency aid supplies are sufficient.	46	12.9	112	34.2	72	20.2	107	30.0	10	2.8
8	The supplies are arrived at the right time.	20	5.6	121	33.9	86	24.1	105	29.4	25	7.0
9	The hygiene of supply are in good condition when distribute.	40	11.2	122	34.2	75	21.0	102	28.6	18	5.0
10	Unorganized water supply at the affected area.	25	7.0	118	33.1	85	23.8	108	30.3	21	5.9
	<b>Funding</b>										
11	The agencies give the funding at the right time.	32	9.0	116	32.5	89	24.9	99	27.7	21	5.9
12	The efficiency in distributing funding is equal.	47	13.2	118	31.1	74	20.7	100	28.0	5	5.0
13	The victims get the funding based on their needs.	28	7.8	125	35.0	79	22.1	98	27.5	27	7.6
14	The availability of funding helps the victims.	44	12.3	112	31.4	81	22.7	96	26.9	24	6.7
	<b>Transportation</b>										
15	The availability of vehicles for aid supply.	20	5.6	121	33.9	90	25.2	106	29.7	20	5.6
16	Emergency transports are sufficient.	46	12.9	117	32.8	83	23.2	100	28.0	11	3.1

17	The emergency vehicles used according on the capacity of vehicles.	25	7.0	118	33.3	82	23.0	100	28.0	31	8.7
18	Safety measures are used when using emergency vehicles	42	11.8	111	31.1	88	24.6	95	26.6	21	5.9
19	Emergency transport arrives at the affected area in a timely manner.	26	7.3	120	33.6	79	22.1	110	30.8	22	6.2
	<b>Routing and scheduling</b>										
20	The travelling time to evacuation centre.	24	6.7	120	33.6	98	27.5	89	24.9	26	7.3
21	The capacity of transportation network.	44	12.3	109	30.5	80	22.4	102	28.6	22	6.2
22	The knowledge of rescue team on the emergency routes.	25	7.0	118	33.1	89	24.9	99	27.7	26	7.3
	<b>Resources coordination</b>										
23	The agencies providing accurate information to the victims.	18	5.0	127	35.6	84	23.5	108	30.3	20	5.6
24	The coordination among the agencies can increase efficiency and speed of operations.	47	13.2	113	31.7	86	24.1	98	27.5	13	3.6
25	The coordination of local agencies is well managed.	21	5.9	119	33.3	88	24.6	107	30.0	22	6.2
26	All agencies coordinate resources depends on number of victims.	43	12.0	119	33.3	84	23.5	92	25.8	19	5.3

## V. Manpower planning

### a) Rescue Team on Timely Manner at Scene

Table 1 illustrated that out of 357 respondents, 144 (40.3%) respondents responded disagreed on whether rescue team arrived at scene on time, followed by 108 (30.3%) respondents who agreed. The remaining 69 (19.3%) respondents responded moderate and 25 (7%) respondents who strongly disagreed. There were only 11 (3.1%) respondents who strongly agreed that rescue team arrived at scene on time. Therefore, it can be concluded that majority of the respondents (40.3%) disagreed that the rescue team arrive on timely manner.

### b) Availability of rescue team

Table 1 showed that 111 (31%) of the respondents disagreed that the rescue team is available when they were needed, followed by 99 (27.7%) respondents responded moderate. and followed by 98(27.5%) respondents who agreed on the availability of the rescue team. From the chart, it can be

concluded that most of the respondent was disagree as the rescue team not available when they are needed. Majority of the respondents (31%) disagreed that the rescue team were available whenever they are needed.

### **c) Availability of manpower in handling the resources**

Table 4.1 indicated that 134 (37.5%) of the respondents disagreed and 13 (3.6%) of the respondents strongly agreed on the availability of manpower in handling the resources. On the other hand, 91(25.5%) of the respondents moderately agreed whilst 98 (27.5%) of respondents agreed. Hence, majority of the respondents (37.5%) disagreed that the manpower is always available in handling the resources.

### **d) Operation rescue was manageable**

Table 1 indicated that 105 (29.4%) of the respondents disagreed that operation rescue was manageable followed by 96 (26.9%) moderately agreed. However, 95 (26.6%) respondents agreed while 41 (11.5%).respondents strongly disagreed. Therefore, it can be concluded that majority of the respondents (29.4%) disagreed that the operation rescue was manageable.

### **e) The sufficiency of manpower capacity**

Table 1 depicted the sufficiency of manpower capacity. The results showed that 132 (37%) of the respondents disagreed that manpower capacity at the affected areas was sufficient to assist flood victims. On the contrary, 117 (32.8%) of the respondents agreed that there is sufficient manpower capacity to assist the victims whilst 63 (17.6%) of the respondents moderately agreed. Additionally, the remaining 25(7%) respondents strongly agreed and 20 (5.6%) of the respondents strongly disagreed. Hence, it can be concluded that majority of the respondents (37%) disagreed that there is sufficient manpower capacity to assist the victims.

## **VI. Distribution of Supply**

### **a) Availability of emergency supply**

Table 1 indicated that 120 (33.6%) of the respondents disagreed on the availability of emergency supply. In contrast, 113 (31.7%) of respondents agreed, whilst 91 (25.5%) of the respondents moderately agreed. The remaining 21 (5.9%) respondents strongly disagreed and 12 (3.4%) of the respondents strongly agreed on the availability of emergency supply. Thus, majority of the respondents (33.6%) disagreed that there is availability of emergency supply which implied that the flood victims have difficulty in getting the supply.

### **b) Sufficiency of emergency aid supplies**

Based on the Table 1, it is clearly stated that 122 (34.2%) of the respondents are disagree and 107 (30%) of them is agree to the sufficient emergency aid supply. 72 (20.2%) and 46 (12.9%) of the respondents where moderate and strongly disagree. Strongly agree only 10 (2.8%) they response on the sufficient of emergency aid supply. It can be concluded that majority of the respondents (34.2%) disagreed that there are sufficient emergency aids supplies.

## **VII. Arrival of supply on time**

Table 1 showed that 121 (33.9%) of the respondents disagreed and 20 (5.6%) strongly disagreed that the arrival of supply is on time. On the other hand, 86 (24.1%) moderately agreed, 105(29.4%) agreed and 25 (7.0%) strongly agreed that the arrival of the supply arrived on time. Hence, it can be concluded that the majority of the respondents (33.9%) disagreed that the supply arrived on time.

## **VIII. Hygiene of supply**

Based on the Table 1, the findings showed that 122 (34.2%) of the respondents disagreed and 40 (11.2%) strongly disagreed on the hygiene of supply. However, 18 (5.0%) strongly agreed whilst 75(21%) moderately agreed and 102 (28.6%) agreed respectively. Therefore, it can be concluded that majority of the respondents (34.2%) disagreed pertaining to the hygiene and condition of the supply.

## **IX. Organized water supply**

Table 1 indicated that 118 (33.1%) of the respondents disagreed and the least number of respondents 25 (7.0%) strongly disagreed on the organized water supply. On the contrary, 21 (5.9%) of the respondents strongly agreed. Thus, the remaining 108 (30.3%) of the respondents agreed and 85 (23.8%) of the respondents moderately agreed. In conclusion, majority of the respondents (33.1%) disagreed that the water supply is disorganized.

## **X. Funding**

### **a) Agencies give the funding at the right time**

Table 1 showed that 116 (32.5%) respondents disagreed that the agencies provide the funding at the right time. In contrast 89 (24.9%) respondents moderately agreed and 99 (27.7%) respondents agreed. The remaining 21(5.9%) respondents strongly agreed and 32 (9%) of respondents strongly disagreed. Therefore, it can be concluded that majority of the respondents (32.5%) disagreed that the agencies provide funding on timely manner.

### **b) Efficiency in equal distribution of funding**

Table 1 showed the highest number of disagreement which represented by 118 (33.1%) of the respondents on the efficiency of distributing the funding equally. However, 100 (28%) of the respondents agreed whilst 18 (5%) of respondents strongly agreed. Additionally, 74 (20.7%) moderately agreed and the remaining 47 (13.2%) strongly disagreed. Therefore, it can be concluded that majority of the respondents (33.1%) disagreed that the efficiency of the funding is equally distributed.

### **c) The flood victims' funding needs**

Table 1 showed that 125 (35%) respondents disagreed on the receiving the funding based on their needs. This followed by 98 (27.5%) and 79 (22.1%) respondents who agreed and moderately agreed respectively. However, only 28 (7.8%) respondents strongly disagreed. Overall, it can be concluded

that majority of the respondents (35%) disagreed that the victims get their funding based on their needs.

#### **d) Availability of Funding to assist the victims**

In terms of availability of funding in assisting the flood victims, Table 1 indicated that 112(31.4%) of the respondents disagreed whilst 96 (26.9%) agreed. The balance 81(22.7%) of the respondents is moderately agreed and only 24(6.7%) of the respondents strongly agreed. The lowest numbers of respondents strongly disagreed represented by 44 (12.3%) respondents. Thus, it can be concluded that majority of the respondents (31.4%) disagreed on the availability of the funding to assist the flood victims.

### **XI. Transportation**

#### **a) Availability of vehicles for aid supply**

In terms of availability of vehicles for aids supply, Table 1 indicated that 121(33.9%) of the respondents disagreed and 106 (29.7%) agreed. On the contrary, 90 (25.2%) of the respondents moderately agreed. Meanwhile, for strongly disagree and strongly agree shared same number of the respondents which is 20 (5.6%) each. Therefore, it can be concluded that majority of the respondents (33.9%) disagreed on the availability of vehicles for aid supply.

#### **b) Sufficiency of emergency transport**

Table 1, depicted that 117(32.8%) respondents disagreed and 100 (28%) agreed on the sufficiency of the emergency transport. However, 83(23.2%) of the respondents moderately agreed and only 11(3.1%) of respondent strongly agreed. The remaining 46 (12.9%) of the respondents strongly disagreed with this matter. Hence, it can be concluded that majority of the respondents (32.8%) disagreed on the sufficiency of emergency transport.

#### **c) Capacity of vehicles used as emergency vehicles**

Based on Table 1, 119 (33.3%) of the respondents disagreed and 100 (28%) of the respondents agreed on the capacity of vehicles used as emergency vehicles. In contrast, 82 (23%) of the respondents and 31 (8.7%) of the respondents moderately agreed and strongly agreed respectively. The remaining 25 (7%) of the respondents strongly disagreed. Therefore, it can be concluded that majority of the respondents (33.3%) disagreed on the capacity of vehicles used as emergency vehicles.

#### **d) Safety measure of the emergency vehicles**

Table 1 indicated that 111 (31.1%) of the respondents disagreed on the safety measure of emergency vehicles. On the other hand, 95 (26.6%) of respondents agreed followed by 88 (24.6%) moderately agreed and 42 (11.8%) strongly disagreed. The remaining 21 (5.9%) of the respondents strongly agreed. Overall, it can be concluded that, majority of the respondents (31.1%) disagreed on the safety measure of the emergency vehicles.

### **e) Emergency transport arrives on timely manner**

Table 1 showed that 120 (33.6%) disagreed on the emergency transport arrives on timely manner. In contrast, 110 (30.8%) of the respondents agreed followed by 79 (22.1%) of the respondents moderately agreed. Additionally, 26 (7.3%) of the respondents strongly disagreed and the remaining 22 (6.2%) of the respondents strongly agreed. Thus, it can be concluded that majority of the respondents (33.6%) disagreed that the emergency transport arrived on timely manner.

## **XII. Routing and Scheduling**

### **a) Difficulties of travelling time to evacuation centre**

Table 1, indicated that 120 (33.6%) of the respondents disagreed on the difficulties of travelling time to evacuation centre. On the other hand, 98 (27.5%) of the respondents moderately agreed that there exist difficulties in terms of travelling time to evacuation centre. Additionally, 89 (24.9%) of the respondents agreed, 24 (6.7%) strongly disagreed and 26 (7.3%) strongly agreed. Hence, it can be concluded that majority of the respondents (33.6%) disagreed on not facing difficulties in terms of travelling time to evacuation centre.

### **b) Capacity of transportation network**

Table 1 indicated that 109 (30.5%) of the respondents disagreed that capacity of the transport network is sufficient. This is followed by 103 (28.6%) respondents who agreed, 80 (22.4%) moderately agreed, 44 (12.3%) strongly disagreed and 22 (6.2%) strongly agreed. Thus, it can be concluded that majority of the respondents (30.5%) disagreed on the sufficiency of the transportation network capacity.

### **c) Knowledge of rescue team on the emergency routes**

Table 1 illustrated the knowledge of rescue team on the emergency route. It depicted that 118 (33.2%) of respondents disagreed followed by 99 (27.7%) respondents agreed that rescue team has adequate knowledge of the emergency routes. The remaining 89 (24.9%) moderately agreed, 25 (7%) strongly disagreed and 26 (7.3%) strongly agreed. Therefore, it can be concluded that majority of the respondents (33.2%) disagreed on the knowledge of rescue team on the emergency routes.

## **XIII. Resources Coordination**

### **a) Agencies providing accurate information**

Table 1 depicted that 127 (35.6%) of the respondents disagreed on the accurateness of the information provided by the agencies. This is followed by 108 (30.3%) agreed, 84 (23.5%) moderately agreed and 20 (5.6%) strongly agreed. The remaining 18 (5%) of the respondents strongly disagreed. Thus, it can be concluded that majority of the respondents (35.6%) disagreed on the agencies providing accurate information.

### **b) Coordination among the agencies can increase efficiency and speed of operations**

Table 1 indicated that 113 (31.7%) of the respondents disagreed, followed by 98 (27.5%) of the respondents agreed on the coordination among the agencies can increase efficiency and speed of the

operations. The remaining 86 (24.1%) respondents moderately agreed followed by 47 (13.2%) strongly disagreed. The remaining 13 (3.6%) strongly agreed. Overall, majority of the respondents (31.7%) disagreed on the coordination among the agencies can increase efficiency and speed of operations.

### c) Coordination of local agencies is well managed

Based on Table 1, it indicated that 119 (33.3%) of the respondents disagreed on the coordination of local agencies is well managed. This is followed by 107 (30%) of the respondents agreed. The remaining respondents 88 (24.6%) moderately agreed, 22 (6.2%) strongly agreed and 21 (5.9%) strongly disagreed. Overall, majority of the respondents (33.3%) disagreed on the coordination of local agencies is well managed.

### d) Agencies coordinate resources depends on number of victims

Table 1 indicated that 119 (33.3%) of the respondents disagreed that the agencies coordinate resources depends on number of victims. This is followed by 92 (25.8%) strongly disagreed, 84 (23.5%) moderately agreed and 43 (12.0%) agreed. The remaining 19 (5.3%) of the respondents strongly agreed. Therefore, it can be concluded that majority of the respondents (33.3%) disagreed that all agencies coordinate resources depends on number of victims.

## XIV. Mean analysis

Table 2 showed mean analysis for all the factors comprising manpower planning, distribution of supply, funding, transportation and routing and scheduling. The results indicated that the highest value of mean is 2.94 which is represented by funding. This is followed by routing and scheduling with mean value of 2.91, transportation 2.90, distribution of supply 2.88 and manpower planning 2.86. Hence, it can be concluded that the respondents' view funding as the most important factor that influence the flood victims' level of perception.

Table 2: Mean Analysis for All Factors

Statistics					
	Manpower planning	Distribution of Supply	Funding	Transportation	Routing and Scheduling
No. of Respondents (N)	357	357	357	357	357
Mean	2.86	2.88	2.94	2.90	2.91

## 10. CONCLUSION AND RECOMMENDATION

In summary, the overall findings indicated that the level of flood victims' perceptions on resource coordination is considered medium low for the five factors as the mean scores range from 2.86-2.94 [11]. Mean Analysis Table. Based on the mean analysis, it is also found that funding scored the highest mean of 2.94 indicating the importance of funding as the main factor influencing flood victims' level of perceptions towards the resource coordination.

On top of that, based on the respondents' responses, it is found that all the five factors namely manpower planning, distribution of supply, funding, transportation and, routing and scheduling have been proven to be ineffective to assist the flood victims due to inefficiency of the relevant authorities in coordinating and managing resources for the flood victims. This is despite that all these factors are significant in ensuring the effectiveness of resource coordination for the flood victims. This can be implied from high percentage and frequency of majority of the respondents' disagreements on all of the abovementioned factors.

As mentioned above, funding plays a significant contributing role in ensuring the effectiveness of resources coordination and to gain positive perception among the flood victims. This is due to the fact that funding will indirectly influence the flood victims' perceptions towards other factors. In particular, routing and scheduling as well as transportation with mean values of 2.91 and 2.90 respectively. Hence the following recommendation are put forward to be considered in ensuring the effectiveness of the resource coordination managed by the relevant authorities.

Firstly, it is recommended that the funding of the resources need to be increased especially related to basic necessities such as food and household essentials inclusive of cost involve to repair and restore the houses that have been damaged due to the catastrophe. Additionally, the funding should be constantly monitored, audited, controlled and distributed equally for the eligible victims by the relevant government authorities. This is to ensure that issues of delay, malpractice, bureaucracy and corruption by irresponsible parties can be avoided. These are basically some steps that could be implemented by the relevant government authorities in order to increase the victims' positive level of perceptions towards the government initiatives.

In term of transportation, it is recommended that the emergency transport assets under authorities such as Royal Malaysia Police, Fire and Rescue Department and National Security Guard should be increased in numbers. This is an important aspect to be considered as these emergency transports are not only practical for the search and rescue mission but also crucial for providing aids and resources for the victims. Apart from that, these assets must be well maintained and allocated at strategic locations on standby mode.

Last but not least, the other important aspect that need to be considered is pertaining to the conduct of in-depth future review or research towards the implementations of Directive 20 procedures. Generally, Directive 20 procedures are guidelines and protocols for any emergency or disaster in Malaysia which have been well-structured by the government from various aspects and perspectives. However, there still exist some issues regarding the protocol which warrant improvement in order for it to be more effective and reliable during the crisis of catastrophe event as a result natural disasters.

**REFERENCES**

- [1] Zainal Abidin Akasah, & Sunitha V. Doraisamy. (2015). 2014 Malaysia flood: impacts & factors contributing towards the restoration of damages. *Journal of Scientific Research and Development*, 2(14), 53-59. Retrieved from [www.jsrad.org](http://www.jsrad.org).
- [2] Lt Col Ajaya Kumar (Rtd). (2015). HADR - Flood Relief Operations in Malaysia. Centre for Defence and International Security Studies (CDISS) National Defence University of Malaysia. Retrieved from <https://www.researchgate.net/publication/286871096>.
- [3] Elias, Z., Hamin, Z., & Othman, M. B. (2013). Sustainable Management of Flood Risks in Malaysia: Some Lessons from the Legislation in England and Wales. *Procedia - Social and Behavioral Sciences*, 105, 491-497. doi:10.1016/j.sbspro.2013.11.052.
- [4] Shavit, T., Shahrabani, S., Benzion, U., & Rosenboim, M. (2013). The effect of a forest fire disaster on emotions and perceptions of risk: A field study after the Carmel fire. *Journal of Environmental Psychology*, 36, 129-135. doi:10.1016/j.jenvp.2013.07.018.
- [5] Roser Rodríguez-Carreras, R., Úbeda, X., Outeiro, L., & Asperó, F. (2014). Perceptions of social and environmental changes in a Mediterranean forest during the last 100 years: The Gavarres Massif. *Journal of Environmental Management*, 138, 75-86. doi:10.1016/j.jenvman.2013.08.013.
- [6] Gandure, S., Walker, S., & Botha, J. (2013). Farmers' perceptions of adaptation to climate change and water stress in a South African rural community. *Environmental Development*, 5, 39-53. doi:10.1016/j.envdev.2012.11.004.
- [7] Brian Majewski, Kaustubh Anil Navangul, & Ian Heigh. (2010). A Peek into the Future of Humanitarian Logistics:Forewarned Is Forearmed. *Supply Chain Forum*, 11. Retrieved from [www.supplychainforum.com](http://www.supplychainforum.com).
- [8] Safer, M., Anbuudayasankar, S., Balkumar, K., & Ganesh, K. (2014). Analyzing Transportation and Distribution in Emergency Humanitarian Logistics. *Procedia Engineering*, 97, 2248-2258. doi:10.1016/j.proeng.2014.12.469.
- [9] Balkumar, K., Thomas, R. A., Anbuudayasankar, S. P., Ganesh, K., Silvian, S. P., & Joy, G. V. (2014). Effective

healthcare management in India—the role of knowledge management. *International Journal of Value Chain Management*, 7(2), 97-723.

- [10] Akmal Izzuddin Bin A. Aziz. (2014). *Humanitarian Logistics: Measuring Customer Satisfaction Towards Disaster*  
A Case Study of Parit Sulong, Batu Pahat Flood Recovery and Relief Programme.
- [11] Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). New York: McGraw-Hill