

The Analysis on the Significant of Policy for Evacuation Coordination for Disaster Management in Malaysia

Safar Yaacob^{1*}, Norlaila Mazura Hj. Mohayadin¹, H.A. Husain², Khairunnisa M.¹, S.S. Inderjit¹, Hasan Al-Banna Mohamed¹

¹ Faculty of Defence Studies and Management, National Defence University of Malaysia, Sungai Besi Camp, 57000 Kuala Lumpur, Malaysia

² Language Centre, National Defence University of Malaysia, Sungai Besi Camp, 57000 Kuala Lumpur,

*Corresponding Author: safar@upnm.edu.my

Copyright©2023 by authors, all rights reserved. Authors agree that this article remains permanently open access under the terms of the Creative Commons Attribution License 4.0 International License

Received: 10 October 2023; Revised: 30 October 2023; Accepted: 20 November 2023; Published: 20 December 2023

Abstract: The aim of this research is to analyse the function of Flood Disaster Policy in managing coordination among inter agencies in evacuation Operation in Malaysia. A total of 750 respondents from Royal Malaysian Police, Fire Department of Malaysia, Civil Defense Department of Malaysia, and Malaysian Armed Forces were selected as respondents for this research using a questionnaire, containing independent variables (policy, planning, risk management, and data management) and dependent variables (efficient evacuation operations). Data has been analysed by using Statistical Package for Social Science and Partial Least Squares. Pearson's correlation tests show significant relationships between all independent variables on Evacuation Operations in all agencies involved. Beta coefficients ($\beta = 0.560$) for policies show that the policy is the most dominant factors affecting Evacuation Operations. Therefore, the effective and well-coordinated for inter agencies operations are highly dependent on the policy and it will contribute to the effectiveness of action in performing evacuation operations.

Keywords: *Policy, Evacuation Disaster, Effectiveness*

1. Introduction

Policy is an official written statement and must be adhered as the guidelines for the implementation of jobs by the organisations or institutions and will be reviewed according to the requirement by the related party who has the authority in the management and administration of that particular organization [1]. The policy plays a vital role in setting the action plan needed according to the principles and protected by the law. The roles of the policy are; the translation of guidelines towards the action that has to be adhered, fulfil the legal requirements, guidelines and bench marking to achieve the organisational aims and objectives, preparation of framework and official action format, the development of successful disaster policy has to consider the following

criteria, a credible and test durable strategy, recognise the unavoidable weakness of the plan, ensure that it will not have a massive failure impact, formulate a 'budget-friendly' disaster action plan, develop a two-phase action; first, a prompt evacuation action in the shortest time possible and second, full evacuation involving the whole team and the activation of the disaster control room, utilise the local facilities available and a collective action with the local community, and provide alternatives to each solution [2]. The aim of this research is to analyse the function of Flood Disaster Policy in managing coordination among inter agencies in evacuation Operation in Malaysia by using Kelantan flood operation in 2014 (*Bah Kuning*) [3]. This article begins with the introduction, which is this paragraph, followed by literature review, methods, results, discussion,

Corresponding Author: Mazura Md Saman, Centre for Military and International Humanitarian Law, NDUM, Malaysia. Email: mazura.mdsaman@upnm.edu.my

and ends with the conclusions and suggestions. The following is the literature review for this study.

2. Literature Review

The followings are the frequently discussed items and are being developed in the Disaster Evacuation Plan, including planning group, list of application and system priorities, and evacuation strategy. The following is a description of each.

2.1. Planning Group

The planning group should consist of the staff who are expert and knowledgeable in evacuation activity procedures [4,5]. The members should also be conversant in the field of technology, network and system used for Disaster Management.

2.2. List of Application and System Priorities

All evacuation activities as well as system and network involved need to be listed according to its priority. It is vital to list out all the software, equipment, location and vendor involved related to the listed activities [6]. The list can be classified according to its priority such as Main Mission, Critical Mission and Non-Critical Mission.

2.3. Evacuation Strategy

The analyses of impact and exposure to risk will help the management in prescribing the level of action and quick response that need to be achieved. Evacuation strategy needs to achieve the prescribed level and objectives George & Mallerry(2003). After receiving the report of the disaster incident either from the public, media or RMP Control Centre (DCC, CCC or MCC whichever related) the responsible unit together with the first response team have to be at the location as fast as possible to evaluate and respond to the disaster incident. Concurrently, the Rescue and Disaster Relief agencies have to be deployed to the location and ready to take action once commanded by the Disaster Operation Commander.

The Disaster Operation Commander has to segregate all the actions by the Rescue and Disaster Relief agencies for the search and rescue operations as well as emergency support to the disaster victims. The Operation Room and Disaster Management Committee will be deployed at the same time according to the level of disaster management to coordinate, observe and executing the search and rescue operation and emergency support. The Disaster Operation Commander should report the latest updates on the situation to the Disaster Management Committee at PKOB to get support and other requirements. Rescue and Disaster Relief agencies which involved in the search and rescue operation at the disaster area have to execute their mission according to the job segregation annotated in the accredited Policy based on their expertise.

3. Methods

This research uses quantitative methods, with correlational research design in order to determine the extent relationship between all independent variables on Evacuation Operations in all agencies involved in evacuation coordination for disaster management in Malaysia. The development of questionnaire for this research contains six parts inclusive independent variable and dependent variables, namely demographic, policy, planning, risk management, data management and efficient evacuation operations with five Likert rating scales. A total of 750 respondents from Royal Malaysian Police, Fire Department of Malaysia, Civil Defense Department of Malaysia, and Malaysian Armed Forces were selected as respondents for this research. Data has been analysed by using Statistical Package for Social Science and Partial Least Squares.

4. Results

4.1. Construct Policy

Table 1 showed that the loading item is higher than 0.7 and it is significant at $p < 0.05$ between 0.709 – 0.805. All items are higher than 0.7 except for item B1 and B10, which is less than 0.7 and the item has been taken out from the construct. Hence, the latent variable for the Policy explains all items from the variance of each indicator. AVE (0.568), CR (0.913), and Cronbach alpha (0.891), each is higher than the cut-off value 0.5, 0.7, and 0.7 respectively.

Table 1. Construct Policy

Construct	Indicator	Loadings	Alpha	CR	AVE
B1	The organisation has policy related to inter agency evacuation.	0.684	0.891	0.913	0.568
B2	The policy on evacuation is known by staff involve in the operation.	0.805			
B3	The policy on evacuation is announced to all level of personnel in the organisation.	0.768			
B4	The evacuation policy can be accessed by all staff involved.	0.752			
B5	The policy related to evacuation is understandable to all staff.	0.772			
B6	The policy on the preparation of evacuation has been briefed clearly.	0.709			
B7	The policy on the counter action of evacuation has been briefed clearly.	0.717			
B8	The report flowchart in the policy has been practiced in the organisation.	0.759			
B9	The policy is in line with its execution in the field.	0.740			
B10	The policy consists of the legal matters in protecting the evacuation handlers.	0.526			

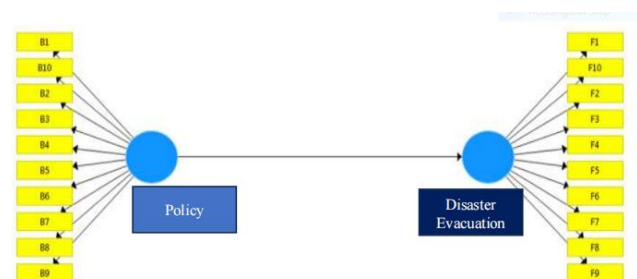


Figure 1. The Construct Model of Policy Measurement

4.1. Disaster Evacuation Construct

Table 2 showed that the loading item is higher than 0.7 and it is significant at $p < 0.05$ between 0.709 – 0.805. Only item F10, which is less than 0.7 and the item has been taken out. Hence, the latent variable for the disaster evacuation explains that most of the variance of each indicator. AVE (0.716), CR (0.958), and Cronbach alpha (0.950), each is higher than the cut-off value 0.5, 0.7, and 0.7 respectively.

Table 2. Disaster Evacuation Construct

Construct	Indicator	Loadings	Alpha	CR	AVE
F1	I have been exposed to Evacuation Management Directive.	0.817	0.950	0.958	0.716
F2	I understand my duties and responsibilities under Inter Agency Evacuation Management.	0.880			
F3	I have involved in the evacuation operation.	0.860			
F4	I have the knowledge in executing the counter action with other agencies in disaster management.	0.875			
F5	I have sufficient expertise to execute my duties in evacuation management.	0.817			
F6	I have the confidence to overcome the problem during inter agency evacuation operation.	0.772			
F7	My agency has been equipped with support equipment such as life jackets, torch lights, First aid kit and tents for the evacuation operation.	0.850			
F8	Transportation assets such as vehicle, boat and helicopter are sufficient during the evacuation management and can be shared.	0.887			
F9	There is an involvement from the community with the Agency in the disaster management.	0.854			
F10	My team has responded quickly after receiving any information about the disaster.	0.606			

Based on the research on the team which involved directly in disaster deployment, the findings toward the importance of Policy, found that based on the five scales used, the finding showed that the minimum value for Policy is 3.00 and maximum of 5.00, and it gives the range of 4.00. The median for the Policy is 3.74 with the standard deviation of 0.647. Min value for Policy is 3.60 that shows the overall Policy level is high. The skewness value is -0.662 that shows the segregation of policy is towards negative and normal (the skewness value is ± 2.0 cutoff point proposed by Inglesly (2003).

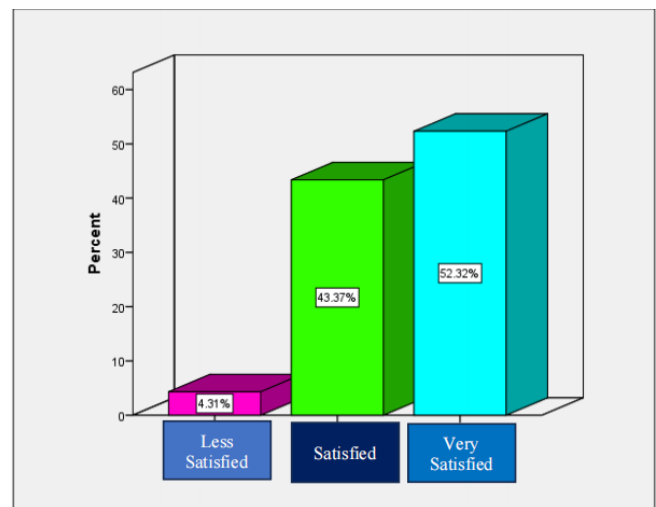
The value obtained for Policy at the 25th percentile is 3.21 and the 75th percentile is 4.00 and the Inter Quartile Range (IQR) is 1.00. The values obtained from both quartiles show that 90% of the respondents towards the Policy is between 3.21 and 4.00. The 90th percentile value for Policy is 4.32 which showed that 10% of the respondents towards the Policy is 4.00 or less.

Based on the scale levels in Figure 2 which showed a lower value 1.00 – 2.33, the value of 2.34 – 3.67 as moderate and the value of 3.68 – 5.00 is high for the Policy level. Therefore, the Preparedness Policy in managing the Disaster among the Agencies has been selected as the highest level towards the Policy in disaster Evacuation, with the lowest level is (4.3%), moderate (43.3%), high (52.3%). This showed that the majority of the Preparedness Policy in managing the Disaster among the Agencies is at the highest level as shown in Figure 2.

The value towards the role of Policy among the Agencies showed the respondents percentile value of 5.3 for not satisfied which is more than half of the respondents. The analysis method based on the number of percentiles when

adding the items of the Policy is Very Important and the percentile that the Policy is not Important is too wide apart which is 95.6 compared to 4.3. The difference in gap value means that between very important and important compared to not important in the policy is unbalanced. Based on the observation of the answers in the question elements in the policy that were deliberately built to answer questions for the objective of 'Pure/basic research', it showed that 'The disaster policy can be accessed by all staff' and the question in paragraph 17, 'the policy is paralleled to the field implementation.

Figure 2. Policy Description Analysis



Almost 90% of respondents answered the lowest Likert value below 3. When the majority of respondents produced the same answer, it means that the answer is free of outliers. The conclusion of the research findings is evaluated, the answers to the problems based on the feedback of the report are paralleled which the agencies involved are lack in understanding the MKN Directive number 20 and have caused overlapping of duties.

5. Discussion

The analysis of the research is based on the latest MKN Directive 20 dated 30 March 2012 and no amendment has been made to the deployment and involvement of Agencies in the management of national disaster. No statement or remark or any election for NADMA to all operations namely one, two and three (I, II, 111). However, the real understanding by all NADMA staff is that they are the Secretariat to the Central Disaster Management Committee, acting to coordinate all activities especially in the matter of preparing the readiness warnings when a disaster occurs. But the real thing is less accurate and not recorded in MKN Directive 20.

Appendix L, paragraph D, the role of MAF in MKN 20, paragraph 1 provides all level of personnel during a disaster, paragraph 3 which is to provide assistance with machinery

equipment for works related assistance during a disaster at all levels and in paragraph 9, which is to provide liaison officers at all levels during a disaster; are contradicted to the information and instruction in the content of MKN 20 which only has the word MAF for the Red Zone.

This inaccurate responsibility is added to the role of the MAF in paragraph 10, appendix L, Part D, which is that the MAF must play the role of providing immediate assistance to disaster victims in situations where the MAF is the first Government Agency to arrive at the scene, and hand over the task to other Rescue Agencies that arrive to continue handling the disaster according to the available instructions. There is no record anywhere in the deployment directive that explains the MAF has to be deployed as the First Agency. It is only written separately in the Appendix section. The matter has to be reanalysed because the deployment and coordination are unclear and confusing when it is related to the source of Power.

This scenario does not conform to the location of the MAF settlement in the Red Zone. The directives and the MKN Disaster Policy are analysed and they should be reviewed and the roles of NADMA and MAF should be stated clearly in Article 16 of the Response Mechanism. The role of NADMA should be stated clearly based on its capabilities and effectiveness of human resources and assets as NADMA has effective assets mobilisation when SMART and MMEA members are placed as the Agencies responsible to implement their duties under the directive of NADMA. The effectiveness of commands and management is more efficient if plans are being detailed accurately and decisively.

What is more important is that, the role of NADMA as the responsible agency in coordinating disaster management at national level or even central and state levels, however, it is not mentioned in MKN Directive Number 20 about NADMA and no amendment has been made in regards to this matter. The matter will arise if should there be any legal implication.

6. Conclusions and Suggestions

Based on the Maslow's Hierarchical Theory, a person will feel unmotivated when he/she is not appreciated. On this basis, the NADMA should be portrayed as the key factor in the country's disaster management process if the MMEA is to be involved as the Secretariat in the management of national disaster. MKN Directive Number 20 which is confusing and hard to be understood in the aspect of source of power and legal, could be very dangerous for the deployment mobilization. When the Policy is quite blurry, the coordination will be complicated and non-effective.

The situation will be more complicated if disaster emergency is declared. If MAF need to take over the role as the commander of disaster management, this matter has not been noted in MKN Directive Number 20. Furthermore, the definition of Emergency in MKN Directive Number 20 has

been stated as a big disaster situation which involves a lot of life casualties, extensive loss of properties, threatened the socio, economy and politics as well as the safety and peacefulness of the public. There is no clear statement that suggests for the MAF to take over or take the lead in the nation disaster management. On the contrary, for the developed countries such as Japan, for example; the directive for disaster management and deployment will include the military and it is stated in details, clearly and precisely.

On the stated capacity, in ensuring the effectiveness in coordinating National Disaster Evacuation Operation, the Policy of MKN Directive 20 needs to be reviewed from time to time for its effectiveness on the following scope and field such as legal and source of power, human resource management, duties and shared assistance management, deployment plan directive, control and coordination, communication, early warning, and operation and training.

ACKNOWLEDGEMENTS

The authors acknowledge to National Defence University of Malaysia for financial assistance.

REFERENCES

- [1] Dynes, Russell, Quarantelli & Enrico (2003). Response to Social Crisis and Disaster. *Annual Review of Sociology*. 3. 23-49. 10.1146/annurev.so.03.080177.000323.
- [2] Drabek T. E. (1991). Anticipating organizational evacuations: Disaster planning by Manager of tourist - oriented private firms. *International journal of Mass Emergencies and Disaster*. Vol 9 No (2), pp 219-245.
- [3] Ishak, Noor Syamimi, Mohamed Dali dan Azharuddin (2014) Banjir besar 1926 di Semenanjung Malaysia. In: 23rd International Conference of Historians of Asia 2014 (IAHA2014), 23 - 27 August 2014, Alor Setar, Kedah, Malaysia.
- [4] Atsumi, T., & Goltz, J. D. (2014). Fifteen years of disaster volunteers in japan: A longitudinal fieldwork assessment of a disaster non-profit organization. *International Journal of Mass Emergencies and Disasters*. Vol, 32 No. 1, pp 220-240.
- [5] Allen, D. G. (2006). Do Organizational Socialization Tactics Influence Newcomer Embeddedness and Turnover? *Journal of Management*. Vol, 32 No, 2, pp 237-256. <https://doi.org/10.1177/0149206305280103>.
- [6] Bottorell A. (2006) The Common Alerting Protocol: An Open Standard for Alerting, Warning and Notification,

Proceedings of the 3rd International ISCRAM Conference (B. Van de Walle and M. Turoff, eds.), Newark, NJ (USA), 497-503.

- [7] George, Darren & Mallery, Paul. (2003). *SPSS for Windows Step-by-Step: A Simple Guide and Reference*, 14.0 update (7th Edition). [http://lst-iiiep.iiiep-unesco.org/cgi-bin/wwwi32.exe/\[in=epidoc1.in\]/?t2000=026564/\(100\)](http://lst-iiiep.iiiep-unesco.org/cgi-bin/wwwi32.exe/[in=epidoc1.in]/?t2000=026564/(100)).
- [8] Inglesby, T. V. (2011). Progress in disaster planning and preparedness since 2001. *Commentary*, 306(12), 1372-1373. doi:10.1001/jama.2011.1359