'Spontaneous' Volunteers Unleashed: Factors Enabling the Mobilisation of the UMT's Student Volunteer Squad in Response to Disaster
(Sukarelawan 'Spontan' Dilepaskan: Faktor Membolehkan Mobilisasi Skuad Sukarelawan Mahasiswa UMT Menyahut Bencana)

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ABSTRACT

The importance of 'spontaneous' volunteers in disaster response and recovery has been widely acknowledged for their beneficial social outcomes and significant contributions. Green Rangers (GR), a Universiti Malaysia Terengganu (UMT) organisation, emerges as a prominent example of successful nature and crisis volunteerism, potentially functioning as student-centred volunteerism as well as a partnership with other non-governmental organisations (NGOs). The need to have an efficient organisation is the main pillar for the efficacy of volunteering activities and student collaboration. Recent research indicates that students from various countries demonstrate a strong commitment to actively participate in disaster and humanitarian response endeavours. This study, however, falls short when the number of participants is limited. Besides, the perspectives and experiences of those participants may not be representative of the large community. Hence, this study aims to explore the factors that influence the 'spontaneous' volunteers' engagement while also looking for ways to enhance the organisation. Data analysis was performed using Multiple Criteria Decision Making (MCDM), which is the Analytical Hierarchy Process (AHP). The results demonstrated that the key component in encouraging volunteers is the readiness to face the disaster occurrence. Additionally, the 'Youth Engagement Effort' has been identified as a crucial factor in enhancing participation in volunteerism. Engaging youth in volunteer activities can be effectively achieved by increasing their self-awareness through disaster preparedness education and emergency management training. The respondents in the study indicated that 'Media Integration' and 'Substantial Backing' are not significant factors in the engagement of 'spontaneous' volunteers. It is anticipated that by identifying the factors that influence 'spontaneous' volunteers, we can significantly promote volunteer engagement, establish clearer roles and responsibilities, and develop more effective procedures, ultimately resulting in improved disaster response and recovery outcomes.

Keywords: Spontaneous' volunteers, Analytical Hierarchy Process (AHP), Disaster

ABSTRAK

Kepentingan sukarelawan 'spontan' dalam tindak balas dan pemulihan bencana telah diakui secara meluas untuk hasil sosial yang bermanfaat dan sumbangan penting mereka. Green Rangers (GR), sebuah organisasi Universiti Malaysia Terengganu (UMT), muncul sebagai contoh menonjol sifat kejayaan dan kesukarelawanan krisis, yang berpotensi berfungsi sebagai kesukarelawanan berpusatkan pelajar serta perkongsian dengan pertubuhan bukan kerajaan (NGO) lain. Keperluan untuk mempunyai organisasi yang cekap adalah tonggak utama kepada keberkesanan aktiviti kesukarelawanan dan kerjasama pelajar. Penyelidikan terkini menunjukkan bahawa pelajar dari pelbagai negara menunjukkan komitmen yang kuat untuk mengambil bahagian secara aktif dalam usaha menangani bencana dan kemanusiaan. Kajian ini, bagaimanapun, gagal apabila bilangan peserta adalah terhad. Selain itu, perspektif dan pengalaman peserta tersebut mungkin tidak mewakili komuniti yang besar. Oleh itu, kajian ini bertujuan untuk meneroka faktor-faktor yang mempengaruhi penglibatan sukarelawan 'spontan' di samping mencari cara untuk meningkatkan organisasi. Analisis data dilakukan menggunakan Multiple Criteria Decision Making (MCDM), iaitu Analytical Hierarchy Process (AHP). Keputusan menunjukkan bahawa komponen utama dalam menggalakkan sukarelawan adalah kesediaan untuk menghadapi kejadian bencana. Selain itu, 'Usaha Penglibatan Belia' telah dikenal pasti sebagai faktor penting dalam meningkatkan

penyertaan dalam kesukarelawanan. Melibatkan belia dalam aktiviti sukarelawan boleh dicapai dengan berkesan dengan meningkatkan kesedaran diri mereka melalui pendidikan kesiapsiagaan bencana dan latihan pengurusan kecemasan. Responden dalam kajian menunjukkan bahawa 'Integrasi Media' dan 'Sokongan Substantial' bukanlah faktor yang signifikan dalam penglibatan sukarelawan 'spontan'. Adalah dijangkakan bahawa dengan mengenal pasti faktor yang mempengaruhi sukarelawan 'spontan', kita boleh menggalakkan penglibatan sukarelawan dengan ketara, mewujudkan peranan dan tanggungjawab yang lebih jelas, dan membangunkan prosedur yang lebih berkesan, akhirnya menghasilkan tindak balas bencana dan hasil pemulihan yang lebih baik.

Kata kunci: Sukarelawan spontan, Proses Hierarki Analitik (AHP), Bencana

INTRODUCTION

Natural disasters are catastrophic occurrences brought on by natural processes and have the potential to harm infrastructure, human lives, and property seriously. Natural catastrophes can take the form of floods, earthquakes, wildfires, tornadoes, volcanic eruptions, and tsunamis. These occurrences are frequently unforeseeable and have the potential to harm both the environment and human society seriously. Flooding is a hydrologic hazard that is inevitably brought on by significant rainfall (Buslima et al., 2018). A flood is a type of natural disaster that occurs when typically dry terrain is inundated by water. This can be caused by heavy rains or a river spilling its banks. Floods can seriously endanger human life and safety, in addition to causing major damage to buildings, roads, and other infrastructure. Therefore, effective flood management, including community volunteerism, is crucial to reducing the risk and impact of such disasters (Chen et al., 2011). In such circumstances, volunteers are essential in assisting emergency responders and assisting those in need. Volunteering is a type of prosocial action that entails voluntarily deciding to devote a sustained amount of time and energy to supporting an individual, group, or cause, usually through a non-profit organisation (A.Stukas et al., 2015; Carlton et al., 2022).

To better understand the similarities and variations across other circumstances, more research is required to look at the elements that enable the mobilisation of the volunteers because it is a phenomenon that is influenced by broader variables rather than only emerging in the wake of a calamity. This could entail examining how governmental regulations, social networks, and personal motives influence volunteer reactions to emergencies. The potential for crisis volunteering to promote social cohesion and resilience should also be considered, as well as the long-term effects it may have on both volunteers and the communities it serves.

The study on the mobilisation of Universiti Malaysia Terengganu's students in response to flooding is significant for a number of reasons. The study can shed light on the elements that facilitate the recruitment of student volunteers during floods. Best practices and methods for upcoming mobilisation initiatives can be identified through this study. Response efforts can be improved by being aware of the elements that facilitate mobilisation (Nissen et al., 2021). As a result, floods may be dealt with more quickly and effectively, perhaps saving lives and limiting damage. Besides that, community resilience can be improved by encouraging students to volunteer during floods. Young people can acquire knowledge and experience that will be useful in responding to disasters in the future by being involved in disaster response (Nissen et al., 2021). This may encourage a sense of civic engagement and accountability.

Insights from the factors identified in Table 1 can help with mobilising and involving volunteers during emergencies. By understanding the reasons that drive students to volunteer during catastrophes, organisations can create effective recruitment methods and ensure that volunteers are well-prepared and supported while volunteering.

Additionally, organisations can spot opportunities for development and work to overcome these difficulties by looking at the obstacles that discourage students from volunteering (Bessaha et al., 2022). This research can help organisations in improving their readiness for disaster response and future catastrophe preparedness.

It is anticipated that this study will result in more clearly defined roles, duties, and procedures, a substantial rise in volunteer engagement, and improved disaster response and recovery outcomes.

TABLE 1. Factors Enabling the Mobilisation of the Student Volunteer Squad in Response to Disaster

Factors for UMT to enable mobilization of volunteers

Main Issue	Sub-Criteria	References
Crisis Readiness	• Extended Resilience • Mitigation Resource Asset • Coordinated Effort	Bessaha et al. (2021); Mclennan et al. (2020);
Youth Engagement Effort	• Youth Empowerment • Adults Involvement Mentorship • Flexible Approaches	Bessaha et al. (2021); Carlton et al. (2021)
Learning Ventures	• Knowledge Sharing • Community Synergy • Inter-Organizational Dynamics	Bessaha et al. (2021); Strandh (2019)
Student's Situation	• Altruistic Volunteering • Time Flexibility • Physically Able	Činčalová & Černá (2021); Nissen et al. (2021); Faranadia et al. (2018)
Filing A Response Vacuum	• Time Contribution • Easy Participation • Flexible Task	Mclennan et al. (2020); Nissen et al. (2021);
Media Integration	• Recruiting Volunteers • Publicity • Effective Communication Channel	Nissen et al. (2021); Raja-Yusof et al. (2016)
Social Connectivity	• Skill Provision • Expanded Expertise • Improve Social Skills	Nissen et al. (2021); Rais et al. (2021); Faranadia et al. (2018)
Substantial Backing	• Material Contribution • Team Endeavor • Stakeholders Support Role	Carlton et al. (2021); (Clary et al., 1998)
Volunteer Ethos	• Student Trust Source • Personal Competencies • Volunteer Satisfaction	Carlton et al. (2021); Rais et al. (2021)

RESEARCH SIGNIFICANCE

The importance of this study is to understand the factors that facilitate the efficient mobilisation of volunteers in times of tragedy. The students' participation and cooperation are essential to disaster relief efforts. This research can be used as an approach to improve the overall efficiency of disaster response efforts and to help design efficient disaster response strategies and policies. Investigating factors enabling volunteer mobilisation can help organisations better prepare for future disasters and strengthen their ability to respond to community needs.

MATERIALS AND METHODS

The present study utilised the Analytic Hierarchy Process (AHP) technique to assess the factors that facilitate the mobilisation of the UMT's student volunteer squad in the case of a disaster. The AHP is well recognised as a prominent decision-making process within the framework of Multiple-Attribute Decision Making (MADM). Its primary objective is to establish the relative importance of different criteria by soliciting expert assessments using a series of scales that represent absolute judgements. As illustrated in Figure 1, the AHP technique consists of eight steps.
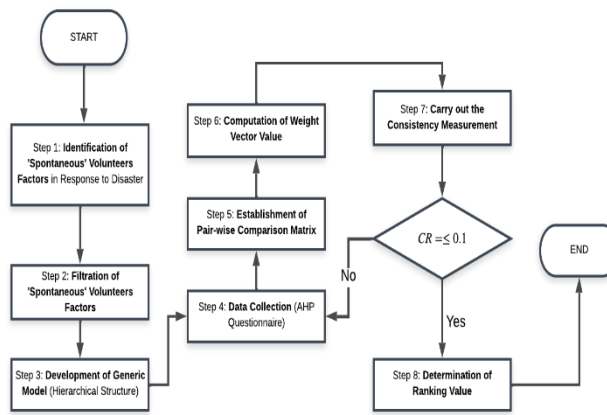
FIGURE 1. Steps of the AHP technique

Identification of 'Spontaneous' Volunteers Factors in Response to Disaster

The assessment procedure began with the identification of pertinent factors, which were derived from an extensive analysis of the existing literature and subsequent discussion with experts in the field involved with the filtration process. Consequently, the factors of influence, as presented in Table 1, are utilised for subsequent steps.
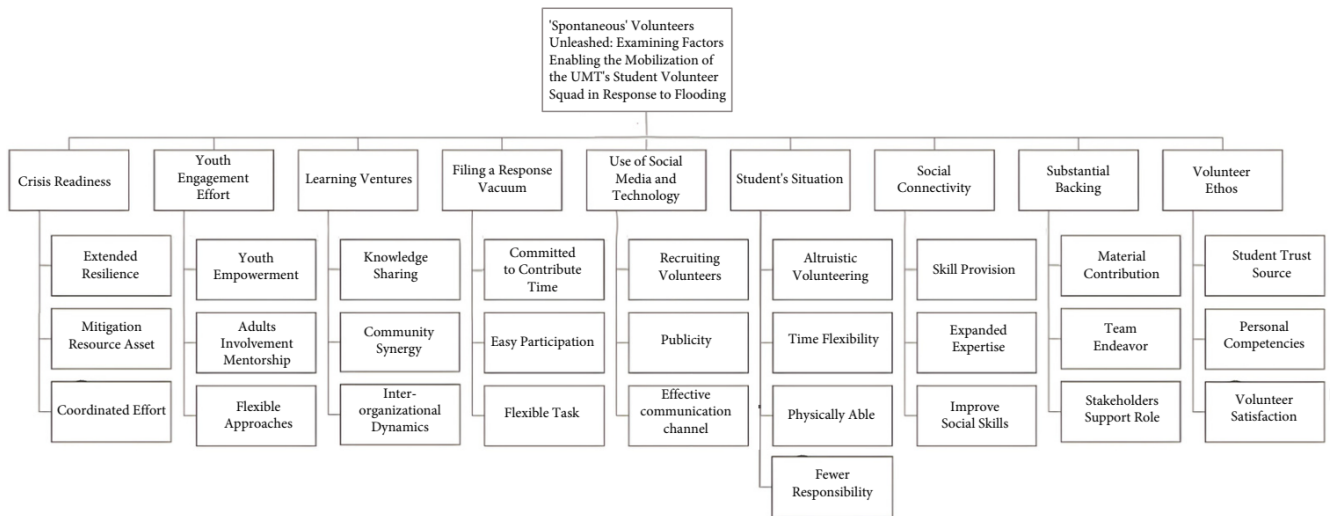
FIGURE 2. Systematic hierarchical model

Filtration and Development of Generic Model

Once the components of influence have been identified, they are refined and filtered, leading to the development of a systematic hierarchical model (Figure 2). A hierarchy is a structure that represents the most straightforward component of a system in a sequential manner (Saaty, 1994).

Data Collection

During this phase, a series of AHP questionnaires was formulated and administered to the chosen experts. The purpose of this technique was to determine the weight value assigned to each criterion and sub-criterion. Ten experts were involved in the data collection process for this study. These experts, as listed in Table 2, were selected based on their 10 to 20 years of experience in volunteer squad response to disasters, as well as their knowledge, skills, and capacity to render judgments and professional opinions.

These chosen experts were required to compare a single criterion with the others, one by one, at the same level of a decision hierarchy by using the ratio scale of measurement (Table 3).

Establishment of Pair-wise Comparison Matrix

In this step, the construction of a pair-wise comparison matrix $(n \times n)$ that shows the preference for one criterion A_i over the other A_j is built using the scale in Table 3 (Saaty, 1994). Then, the above rules of matrix D are shown as follows:

$$D = a_{ij} = \begin{bmatrix} 1 & a_n & \cdots & a_{1n} \\ 1/a_n & 1 & \cdots & a_{2n} \\ 1/a_{1n} & 1/a_{2n} \cdots & & 1 \end{bmatrix}$$

Computation of Weight Vector Value

For purposes of determining the priority of each criterion (W_k), the value of each comparison is computed using Equation 1.

$$W_k = \frac{1}{n}\sum_{j=1}^{n}\left(\frac{a_{kj}}{\sum_{j=1}^{n} a_{ij}}\right)(k = 1,2,3,\cdots,n) \quad (1)$$

where a_{ij} stands for the entry of row i and column j in a comparison matrix of order n.

Carry out the Consistency Measurement

The computation of the Consistency Ratio (CR) is performed to ascertain the level of consistency in the judgements provided by the experts. The equation of the CR is expressed in Equation 2-4 as follows:

$$CR = \frac{CI}{RI} \quad (2)$$

$$CI = \frac{\lambda_{max} - n}{n - 1} \quad (3)$$

$$\lambda_{max} = \frac{\sum_{j=1}^{n}\left[\frac{\sum_{k=1}^{n} W_k a_{jk}}{W_j}\right]}{n} \quad (4)$$

where Random Index (RI) refers to the value of the average random index (Table 4).

TABLE 2. Background Details of Experts

Expert	Position	Years of Experience
1	Operating Officer	>10
2	Fire Department Officer (KB19)	10-15
3	Fire Department Officer (KB19)	>20
4	Fire Department Officer (KB19)	>10
5	Release Chief (Sergeant)	>10
6	Civil Defense Junior Lieutenant	>10
7	Operating Officer (Malaysian Civil Defense)	10-15
8	Administrative Assistant	>10
9	Fire Officer	>10
10.	Senior Lecturer	10-15

TABLE 3. Ratio Scale for Pair-Wise Comparison

Intensity of Importance	Definition
1	Equal importance
3	Moderately important
5	Strongly important
7	Very Strongly important
9	Extremely importance
2,4,6,8	Intermediate values

TABLE 4. Value of Average Random Index

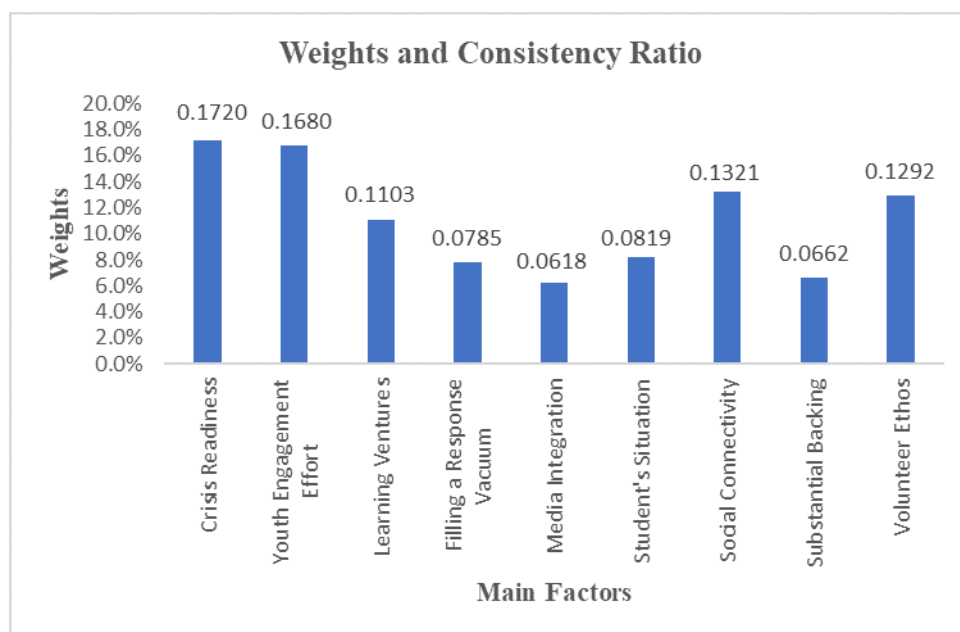| n	RI
1	0
2	0
3	0.52
4	0.89
5	0.11
6	1.25
7	1.35
8	1.4
9	1.45
10	1.49

(Source: Saaty, 2013)

FIGURE 3. Main Factors Enabling Volunteer Mobilisation

The CR value should be less than or equal to 0.1 in order to meet the desired criteria. However, in the event that the consistency ratio (CR) exceeds 0.1, it becomes necessary for experts to re-evaluate and amend any pair-wise comparisons that display logical inconsistencies.

Determination of Ranking Value

During the final phase, the calculation of the global weight for each factor will be conducted in order to obtain a single outcome. Also, in this stage, the weight assigned to each sub-factor at the local level is multiplied by the weight assigned to its corresponding main component, with the aim of identifying the factor that has the most influence.

RESULTS AND DISCUSSION

The questionnaires were collected from the 10 respondents, and the average of each entry in the comparison matrices was calculated. The respondents were experts with 10 to 20 years of experience in responding to disasters as part of volunteer squads. The factors that influence motivation to join a volunteering activity were calculated using the weights of the factors. AHP was used to analyse the importance of the criterion.

Figure 3 shows the result of the weights and consistency ratio of the main factors for this study, which are detailed in Table 5.

TABLE 5. Weights and Consistency Ratio of Main Factors

Main Factors	Weights of Main Factors	Rank
Crisis Readiness	0.1720	1
Youth Engagement Effort	0.1680	2
Learning Ventures	0.1103	5
Filling a Response Vacuum	0.0785	7
Media Integration	0.0618	9
Student's Situation	0.0819	6
Social Connectivity	0.1321	3
Substantial Backing	0.0662	8
Volunteer Ethos	0.1292	4
CR: 1.0000		

The weights of the main factors indicate that 'Crisis readiness' is the most important element enabling volunteer mobilisation in response to disasters, contributing 0.1720. 'Youth engagement effort' is the second most important element, with a weight of 0.1680, followed by 'Social Connectivity'. Meanwhile, 'Media integration' and 'Substantial backing' are insignificant elements in encouraging people to participate in volunteering activities.

The results of the questionnaire indicate that a critical factor that influences the people getting involved in helping our community is the readiness to deal with the disaster, which is related to the time and timing. The most recent flood disaster in Malaysia occurred in December 2021. Although floods are the most common natural disaster in Malaysia, typically caused by seasonal monsoon floods, flash floods, and tidal floods, an unprecedented flood disaster occurred in 2021 in an unexpected district (Bhuiyan et al., 2022; Noor et al., 2022). This event resulted in delayed flood rescue efforts and volunteer responses to rescue victims. Additionally, a 'jammed' sluice gate, which was supposed to manage the flow of water into the nearest river, exacerbated the situation by causing the floodwaters in that area to recede more slowly.

The 'weakness' of readiness over flood response caused 50 deaths, required the evacuation of about 400,000 people, and resulted in an overall estimate of RM 6.1 billion in financial losses in the tragedy.

While youth engagement effort ranked in second place as a main factor that influenced the willingness to volunteerism. The younger generation can play an essential role in disaster preparedness and recovery. Institute of Youth Research Malaysia (2021 as cited in, Mohd Ramlan Mohd Arshad et al. (2022) stated that the volunteerism involvement of youths

in Malaysia was only 27.1%. It could be due to time constraints or their responsibilities at school and work.

Furthermore, the vulnerability of these youths could have been influenced by multiple factors, including youth empowerment, adult involvement in mentorships, and flexible approaches, as shown in Table 6. Mohd Tariq Mhd Noor et al. (2022) studied youth volunteering for disaster preparedness in Malaysia. The authors discovered that it is crucial to raise awareness among youth through education and emergency management knowledge. This approach will increase their awareness, enabling them to learn how to react appropriately to various types of emergencies and be better equipped to respond. Hence, all parties, including private and public sector organisations, should start a community-based program to improve youth preparedness and help share the message about the importance of disaster preparedness and volunteerism participation.

TABLE 6. Ranking Orders of the Sub-factors

Sub-Indicators	Global Weight	Rank
Extended Resilience	0.0596	4
Mitigation Resource Asset	0.0479	7
Coordinated effort	0.0646	3
Youth Empowerment	0.0569	5
Adults' Involvement Mentorship	0.0444	8
Flexible approaches	0.0667	2
Knowledge Sharing	0.0356	13
Community Synergy	0.0360	12
Inter-organizational Dynamics	0.0388	10
Committed to Contribute Time	0.0259	18
Easy Participation	0.0204	23
Flexible Task	0.0322	14
Recruiting Volunteers	0.0183	24
Publicity	0.0183	24
Effective Communication Channel	0.0252	20
Altruistic Volunteering	0.0161	27
Time Flexibility	0.0217	22
Physically Able	0.0321	15
Fewer Responsibility	0.0121	28
Skill Provision	0.0520	6
Expanded Expertise	0.0384	11
Improve Social Skills	0.0417	9
Material Contribution	0.0234	21
Team Endeavor	0.0175	26
Stakeholders Support Role	0.0252	19
Student Trust Source	0.0313	16
Personal Competencies	0.0283	17
Volunteer Satisfaction	0.0696	1

FIGURE 4. Sub-factors Enabling Volunteer Mobilization

Based on the weights of factors, 'Media integration' and 'Substantial backing' play insignificant roles in 'spontaneous' volunteer engagement. However, the finding disagreed with (Nissen et al., 2021). The authors believed that social media plays an essential role in promoting activity and calling for volunteers. The information can be delivered quickly and widely disseminated through social media, especially the Facebook platform. Through the current questionnaire in this study, it is believed that the respondents doubted the effectiveness of social media in encouraging volunteerism involvement across all age groups in the community. There must be an alternative way for an organisation to utilise social media tools to engage people of all ages through the use of more creative and interactive social applications. In addition, the respondents assume that substantial backing in disaster response may contribute a small impact in encouraging community participation in volunteerism.

Figure 4 demonstrates that 'Volunteer satisfaction' under the main factor of 'Volunteer Ethos' has the highest global weight, followed by 'Flexible approaches' under the main factor of 'Youth Engagement Effort'. 'Coordinated effort' under the main factor of 'Crisis readiness' was ranked third. Based on these results, it is evident that the community in a country must be well-prepared and self-aware to deal with disaster occurrences effectively. A good and fast coordinated effort is found to be a vital strategy that embraces spontaneous volunteers, such as disaster recovery arrangements with the local council to provide boats for evacuation.

CONCLUSION

In conclusion, the study found that readiness to deal with disasters is the main element in enabling volunteerism participation. Other factors, including the 'Youth engagement effort' have also significantly contributed to the development of a voluntary environment. Disaster preparedness education and emergency management expertise should be offered in order to raise awareness among young people and increase their involvement in volunteerism. The volunteer ethos must not be overlooked either. Thus, this study revealed useful information that could be used to improve the participation of communities and response during disaster occurrence. Lastly, it is hoped that the study will help people, organisations, and countries enhance

the efficiency of flood management.

ACKNOWLEDGEMENTS

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