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POST DISASTER MANAGEMENT FOR RESIDENTIAL ESTATES IN PASIR MAS, KELANTAN

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ABSTRACT

This research study focuses on post-disaster management in urban areas, using flash floods as a case study. The research commences with an introduction outlining the research area's background, problem statement, research questions, aims, and objectives, emphasizing its significance. The methodology section elaborates on the approach, incorporating literature review, questionnaire survey, and case study. The literature review explores natural and manmade disasters, delving into post-disaster management and reconstruction while analysing emergency responses and identifying research gaps. The research methodology further explains the chosen design, sampling techniques, data collection methods, and data analysis tools, utilizing Likert scales. Findings and discussions present survey results, including respondent demographics and questionnaire analysis, culminating in summarizing the study's conclusions, successfully achieving the research objectives. The study culminates in recommendations for enhancing post-disaster management, considering factors affecting implementation among local authorities and communities. This research significantly contributes to comprehending and improving post-disaster strategies in urban areas impacted by flash floods.

Keywords: post disaster management, residential estate.

INTRODUCTION

A disaster is a substantial disruption of a society's normal operations that causes considerable losses of life, property, or the environment that are more than what the affected society could recover from on its own. Disasters can be classified as manmade or natural, and as beginning quickly or slowly (according to cause). When a danger has a significant impact on a community, a disaster is taking place in that community (Thanurjan & Seneviratne, 2009).

Malaysia is still working to modernize and reorganize its national disaster management system. In Malaysia, the initial step in the decision-making process is social learning. Each project the authorities complete will have a project report and evaluation. Academic research and consultation are crucial when amending and developing new policies, such as Malaysia's national structural, physical, and local plan, as well as other pertinent initiatives (Roosli & O'Keefe, 2013).

Major human consequences include fatalities, injuries, and displacement of people, whereas major environmental consequences include crop destruction, property damage, collapsed structures, infrastructure, and psychosocial effects (Karunasena & Amaratunga, 2016). For both citizens and rescue personnel, damaged or rendered inoperable infrastructure can pose serious challenges, slowing the process of recovery from a disaster. On the other hand, robust infrastructure systems that meet necessities can boost community confidence and make the situation more bearable (Liu et al., 2016).

LITERATURE REVIEW

Disaster

In general, disaster can be classified into two categories; man-made disaster and natural disaster (Rani et al., 2017). "Natural disaster" is defined as "the detrimental effect following an actual occurrence of a natural hazard in the event that it significantly harms a community." A natural disaster typically causes economic devastation in addition to the possibility of human or property loss. The extent of the destruction depends on the population's fortitude and the infrastructure's condition. A few examples of natural hazards include avalanches, coastal flooding, cold waves, droughts, earthquakes, hailstorms, heat waves, hurricanes (tropical cyclones), ice storms, landslides, lightning, riverine flooding, strong winds, tornadoes, typhoons, tsunamis, volcanic activity, wildfires, and winter weather. Large-scale disasters cause severe damage to the built environment and interfere with power and communication systems, making it challenging to carry out daily tasks for people and emergency management operations (Alias et al., 2018)

Malaysia is situated in the tropical region of South-East Asia. The frequent, intense rainstorms that occur in this area give it its unique characteristics. There are several tropical jungles and woodlands nearby. Due to the intense rainfall, Malaysia has seen several natural disasters, including mudslides, floods, and landslides. 2020 is the target date Malaysia has chosen for achieving full development. Malaysia is developing swiftly across many industries. 16 man-made disasters, including production failures, public failures, and technical failures, have occurred in Malaysia. Subsequent catastrophes like the haze brought on by forest fires in neighbouring countries have also had an effect on Malaysia (Shaluf & Ahmadun, 2006).

Natural Disaster

Natural disasters occur when an exceptionally vulnerable community is overrun by a danger, typically leading to mortality and morbidity. More than 300 natural disasters have occurred annually during the past ten years, affecting millions of people and costing billions of dollars. The catastrophe cycle serves as the foundation for a coordinated plan to respond, recover, prevent, and get ready for a disaster. Lack of access to clean water, poor sanitation, inadequate food and nutrition, inadequate shelter, and the potential for infectious diseases are all issues that could harm the management of a natural disaster and hinder the recovery process.

Man-Made Disaster

Man-made disasters entail human intention, negligence, or error involving a failure of a man-made system, as opposed to natural disasters brought on by natural dangers. Examples of man-made disasters include crime, arson, civil unrest, terrorism, war, biological/chemical threat, cyberattacks, etc. Shaluf *et al.* (2002a, b) analysed the reasons behind the occurrence involving the bright sparkler. The incident at the shared MHIs was thoroughly analysed by Shaluf et al. (2003a, b) (chemical supply ship and terminal). Fakhru'l-Razi *et al.* (2003) investigated the incident at the petrochemical factory. The refinery incident was studied by Shaluf *et al.* (2003a, b). The three states where the Japanese Encephalitis (JE) first surfaced were Perak, Negeri Sembilan, and Melaka. After being prohibited from producing in Japan, the company relocated its plant there. Carelessly thrown away were the radioactive wastes produced during the Yttrium production process. The local villages were sick because of the significant contamination in the area (Shaluf & Ahmadun, 2006).

Post Disaster

According to IGI Global, post-disaster means a scenario where a calamity has already occurred, and government rescue efforts are in progress. This stage also covers the interval between a disaster's occurrence and efforts to restore normalcy to people’s lives through rehabilitation and reconstruction. For insured disaster victims, the insurance industry is currently processing their claims. Recovery programmes offer a

vital opportunity to develop and implement catastrophe risk reduction strategies and to apply the "build back better" principle. They are also closely related to the increased public interest and involvement that occurs after a disaster. The recuperation stage is the most crucial phase because it calls for juggling numerous tasks at once. This refers to the reconstruction, by diverse stakeholder groups, of damaged buildings, infrastructures, community centres, and local businesses. The techniques used in the physical planning for post-disaster recovery and how the stakeholders might cooperate are examined in this article to ensure that the rebuilding of the disaster-prone area is developed with resilience for long-term sustainability (Rani et al., 2017).

Post-Disaster Management

The International Strategy for Disaster Reduction defines post disaster management as "decisions and actions taken after a disaster with a view to restoring or improving the pre disaster living conditions of the stricken community, while encouraging and facilitating necessary adjustments to reduce disaster risk". Opportunities for sustainable development can arise from unexpected situations. This perspective holds that rather than only replacing or rebuilding the damaged infrastructure, recovery must concentrate on the factors that increase risk and unsustainability. One must take care of the immediate needs of the affected population while simultaneously grabbing every opportunity for change to guarantee the sustainability of the recovery efforts and set the foundation for new growth (UNDP, 2011).

Flash Floods in Urban Areas

Flash floods are a common occurrence in Malaysia, particularly during the monsoon season. These floods can cause significant damage to infrastructure, property, and even loss of life. In recent years, there has been an increase in the frequency and severity of flash floods in Malaysia, which has led to a growing interest in understanding the causes and impacts of these events. One of the main causes of flash floods in Malaysia is heavy rainfall, which is often associated with the monsoon season. The intensity and duration of rainfall can vary greatly, and this can have a significant impact on the likelihood of flash floods occurring. In addition to rainfall, other factors such as topography, land use, and drainage systems can also contribute to the occurrence of flash floods (Weng Chan, 1997).

METHODOLOGY

The research problem can be properly approached using research methods. It might be viewed as a science that examines the methods used in scientific research. In it, we examine the many approaches typically used by researchers to investigate the

research issue as well as the rationales supporting them. The researcher must be familiar with the methodology and the research methods or procedures. Researchers must understand which of these approaches or procedures are pertinent and which are not, as well as what they would signify, support, and mean. Along with learning how to use particular research methods, compute mean, mode, median, standard deviation, or chi-square, and design specific tests or indices, this is also important.

The quantitative research strategy for this study includes a survey as one of its techniques. The purpose of this study is to collect relevant information regarding the local government's perspective on post-disaster management for residential housing areas in Pasir Mas, Kelantan. To help the study, reach its objectives, 50 respondents were selected. Data for the inquiry were gathered via a questionnaire survey. We employed questionnaire surveys since it is common practise to derive generalisations about a population's preferences and perspectives from a sample. A questionnaire has the advantage of being able to swiftly reach a population that is adequately representative of the entire population, allowing for the collection of data that can be analysed.

Section A of the questionnaire survey discusses the respondents' backgrounds. To learn more about Pasir Mas post-disaster management, Section B was tasked. The objectives of Section B's questions, which employed scales with responses ranging from "1" to "5," were to make the respondents' decision-making process for the ambiguous themes more understandable. In Section C, information on how they will handle the disaster. With some modest adjustments made in accordance with the objectives of the study, the instruments were developed utilising data from numerous past investigations.

ANALYSIS AND FINDING

Part A - Respondent’s Demographic

The data presents demographic variables of a sample population. The age distribution shows that 37 individuals (37%) fall within the 18-25 age group, 8 individuals (8%) are between 26-35 years, 4 individuals (4%) are aged 36-45, and only 1 individual (1%) is 46 years or older. In terms of gender, there are 27 male respondents (27%) and 23 female respondents (23%). Regarding district distribution, most respondents, 34 individuals (34%), are from Pasir Mas, while 16 individuals (16%) are from Rantau Panjang. Concerning the duration of occupation, 6 individuals (6%) have been occupied for 1-5 years, 8 individuals (8%) for 6-10 years, 8 individuals (8%) for 11-15 years, 9 individuals (9%) for 16-20 years, 7 individuals (7%) for 21-25 years, and 12 individuals (12%) for 26-30 years.

Part B - Awareness About Disaster Management

Part C - Information on How They Will Handle the Disaster

The provided information encompasses various figures that offer valuable insights into respondents' disaster preparedness actions, perceptions, and needs.

The data reveals the diverse actions taken by respondents to protect themselves and their families during emergencies, with 40% prioritizing identifying safe areas, 12% engaging in practice drills, 2% emphasizing learning first aid, 34% focusing on following evacuation orders, and 12% on staying calm and reassuring family members.

The data highlights respondents' disaster response and recovery priorities, with 42% emphasizing emergency shelters, 14% focusing on evacuation plans, 24% prioritizing early warning systems, 16% emphasizing post-disaster relief and assistance, and 4% stressing infrastructure repair and restoration.

The data illustrates the disaster preparedness measures adopted within communities, with 26% prioritizing evacuation plans, 6% establishing communication networks, 32% mentioning emergency supplies and kits, 14% participating in community training and drills, and 22% valuing community support and collaboration.

The data showcases respondents' preferred communication channels during emergencies, with 52% relying on emergency alert systems, 22% using public information hotlines, 20% choosing media briefings, and 6% opting for social media and websites.

The data highlights the priorities and needs of respondents in disaster-affected areas, with 56% prioritizing food and water supplies, 20% emphasizing emergency shelters, 12% requiring damage assessment and recovery assistance, 8% needing medical assistance, and 4% seeking psychological support.

The data emphasizes the extent of collaboration between local people and various entities in the community, with 46% collaborating with government agencies, 30% engaging with NGOs, 16% forming or joining volunteer groups, and 8% collaborating with educational institutions.

Lastly, the data depicts the disaster preparedness actions taken by respondents to protect themselves and their families, with 40% staying informed, 18% developing a family emergency plan, 14% building an emergency kit, 18% securing their property and conducting safety assessments, and 10% learning first aid and basic life-saving skills.

These findings provide comprehensive insights into the respondents' preparedness and perceptions, enabling policymakers and stakeholders to design targeted

strategies, foster community resilience, and ensure efficient communication during emergencies. By addressing the identified priorities and engaging in collaborative efforts, communities can better mitigate risks, respond effectively, and recover swiftly from disasters, ultimately safeguarding the well-being and safety of all residents.

CONCLUSION

In conclusion, the research findings from respondents in Pasir Mas provide valuable insights into disaster preparedness and post-disaster management in the region. The study accomplished its objectives, shedding light on issues concerning flash floods, levels of awareness within the local community, and factors affecting post-disaster implementation. The respondents displayed a mix of knowledge and uncertainty regarding disaster management, indicating the need for targeted awareness initiatives. The recommendations put forth for the government, NGOs, and individuals offer practical steps to enhance disaster resilience, including improved funding for early warning systems, sustainable infrastructure, and community involvement. By implementing these recommendations, stakeholders can strengthen disaster response and recovery efforts, ultimately leading to a safer and more resilient community. Additionally, the study highlights the importance of public awareness campaigns and knowledge-sharing among NGOs and local authorities. Addressing these key areas can contribute significantly to mitigating the impact of disasters, promoting community cohesion, and fostering a proactive approach towards disaster preparedness. Overall, the research serves as a valuable resource for policymakers, local authorities, and organizations to develop effective strategies and programs that enhance disaster management practices and safeguard the well-being of the residents of Pasir Mas.

REFERENCES

Alias, N. A., Siwar, C., Ismail, M. K., & Idris, N. D. M. (2018). Flood disaster management in sungai pahang basin: Case of temerloh. *Community, Environment and Disaster Risk Management*, *20*, 91–102. https://doi.org/10.1108/S2040-726220180000020017

Liu, M., Scheepbouwer, E., & Giovinazzi, S. (2016). Critical success factors for post disaster infrastructure recovery: Learning from the Canterbury (NZ) earthquake recovery. *Disaster Prevention and Management*, *25*(5), 685–700. https://doi.org/10.1108/DPM-01-2016-0006

Rani, W. N. M. W. M., Nifa, F. A. A., Ismail, M. N., & Khalid, K. N. (2017). Planning for post disaster recovery: Lesson learnt from flood events in Kelantan Malaysia.

AIP Conference Proceedings, *1891*. https://doi.org/10.1063/1.5005476

Roosli, R., & O'Keefe, P. (2013). Post-disaster housing and management in Malaysia: A literature review. In *International Journal of Disaster Resilience in the Built Environment* (Vol. 4, Issue 2, pp. 168–181). https://doi.org/10.1108/IJDRBE-06- 2011-0022

Shaluf, I. M., & Ahmadun, F. R. (2006). Disaster types in Malaysia: An overview. *Disaster Prevention and Management: An International Journal*, *15*(2), 286–298. https://doi.org/10.1108/09653560610659838

Thanurjan, R., & Seneviratne, L. D. I. P. (2009). The role of knowledge management in post-disaster housing reconstruction. *Disaster Prevention and Management: An International Journal*, *18*(1), 66–77. https://doi.org/10.1108/09653560910938556

UNDP. (2011). Methodological Guide for Post-Disaster Recovery Planning Processes. *United Nations Devleopment Program*, 41.

Weng Chan, N. (1997). Increasing flood risk in Malaysia: Causes and solutions. *Disaster Prevention and Management: An International Journal*, *6*(2), 72–86. https://doi.org/10.1108/09653569710164035

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