

Development of A Disaster Kit Based on A Cultural Context for Flood Disaster Relief and Preparedness

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ABSTRACT

Introduction: Flood disaster is a natural disaster that has unexpectedly occurred again. Community cooperation in terms of managing flood and focusing on families' needs has become more systematic. It is important for a household to be prepared in any disaster. One of the preparations that should be done is the stockpiling of emergency supplies or flood supply kits during evacuation. This study aimed to develop a specific disaster kit for households for evacuation during a flood disaster based on cultural context. **Methods:** Data were collected from 75 key informants from every level of households that really have a great experience during the flood disaster that helping family packing for a living needs before evacuation. The development of the disaster kit based on cultural needs and all their views, needs, experiences, challenges, frustration and happiness was obtained from the interview sessions. **Results:** There are five themes that emerged from this research related to developing a disaster kit. The themes are community preparedness in dealing with flood disaster, hygiene issues during the flood, inadequate food supply, how the community responds to insufficient water supply, and coping method with illness. After being finalized, there are seven kits: a general supplies kit, documentation kit, emergency food and water supply kit, prayer kit, hygiene kit, basic first aid kit, and baby kit. **Conclusion:** The development disaster kit was created to help the communities to be more aware and prepared before disaster strikes.

KEYWORDS: Experience, Flood disaster, Disaster kit, Cultural context.

INTRODUCTION

A disaster is defined as any devastation/destructive event that interferes with the normal functioning of a community, whether it is natural (caused by natural or environmental forces) or human-made incident.¹ One natural disaster is a flood. According to the American Meteorological Society, a flood is defined as an overflowing of the normal border of a small river or the accumulation of water over areas that are not normally immersed.²

Flood disaster is a common calamity in Malaysia, especially in the east coast region and it occurs

annually, especially in Kelantan state. The unpredictable floods that surged in Kelantan, one of the states at the east coast of Peninsular Malaysia, from 22 until 30 December 2014 were the worst and largest recorded floods in the history of Kelantan.³ According to historic research regarding Kelantan and most of the East Coast, a major flood once every 5 years inundate a great extent of the state. For instance, approximately 20.0 percent of the total area of Kelantan, which is over 300,000 hectares, had been inundated in 1967.⁴

Even though the flood disaster is a very common calamity in Malaysia, the community has a low awareness of how to prepare for a flood as well as for a disaster. This is because they prefer that this issue, perceived as being trivial should be solved by the government when flooding occurs through flood protection.⁵

This study is a continuing study after the completion of the first phase of research. The experiences of

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the community in dealing with flood disaster were explored by the previous researcher. From the findings given, the researcher could analyse the needs of the victims during evacuation from a flood disaster to develop the disaster kit based on their cultural context.

The concept of culture must be understood so the benefits will be more valued in managing the disaster. According to the traditional view of Stefan Groesch and Liz Dohert, the term culture is used in a wide range of social sciences and has different meanings in different areas.⁶ Besides that, culture is an unambiguous set of necessary assumptions and beliefs, orientations to life, guidelines, measures and accepted behaviours that are shared by a group of people.⁷ It has an ability to influence each member's behaviour and interpretations of the 'meaning' of other people's behaviour.

The concept of preparedness for the floods includes an early warning system, activities such as possibility planning, storage of equipment and supplies, the development of coordination arrangements, essential training and field exercises, and evacuation and public information.⁸ As mentioned above, the storage of equipment and supplies can also be referred to as a flood supplies kit. In other words, a household or supplies kit is a vital element to be taken out during the evacuation from a flood disaster and it should be gathered and put in an easy-to-carry container.⁹

The contents of the kit should be enough for an individual survival for at least three days. Some suggested items for the emergency kit are: torchlight and batteries, radio, first aid kit, candles, matches or lighter, important documents, non-perishable food and bottled water, blankets, toilet paper, medication, whistle (to attract attention, if needed) and playing cards.⁹ Next, water purifying supplies, such as chlorine or odourless iodine tablets, common household chlorine bleach and clean cloths are also important items in an emergency kit. Other important kits are hygiene supplies, rubber boots, sturdy shoes, waterproof gloves and insect repellent for protection as mosquitoes may gather in pooled water after the flood.¹⁰

In Malaysia, there is a difference between Muslims and those of other religions. For Muslims, prayer is

compulsory regardless of the situation as long as the person is mentally healthy and in good health. Thus, a prayer kit during an evacuation is important so that Muslims can carry out their congregational prayer. However, in the cultural context, the need to bring all these things is differentiated based on their preferences.

To conclude, there is inadequate information regarding the disaster kit that needs to be taken during the evacuation from floods based on cultural perspectives in Malaysia. So the researcher decided to explore the experiences of the community based on the findings in Phase 1 and develop a disaster kit for flood victims based on the community's cultural context.

MATERIALS AND METHOD

This is a developmental research project (Disaster Kit) with an embedded qualitative approach and is a continuation of the previous research study in Phase 1 which has focused on community experiences on prevention, preparedness and recovery of the flood disaster in cultural and local wisdom context. The detail finding of this phase 1 will be published in International Journal of Care Scholar (2019-Vol 2 No 1)(inpress). The study was conducted in Gua Musang, Kuala Krai and Kota Bahru. Data were collected from 75 key informants (age range from 15-72-year-old) from every level of households that really have a great experience during the flood disaster that helping family packing for a living needs before evacuation. This study aimed to develop the disaster kit based on cultural needs and all their views, needs, experiences, challenges, frustration and happiness was obtained from the interview sessions. The interviews were conducted at their own pace of time and their preferred place. The interview's duration was approximately less than an hour duration and all the interviews were carried in Malay language and their local dialect preferences. The interview also has reached saturation of the data. The results of the in-depth interviews were analysed by using schematic analysis and meaningful data about the cultural context that related with disaster kit were captured from the findings and five themes were emerging from the analysis. This research was also approved by the Kulliyah of Nursing Postgraduate and Research Committee (KNPGRC) and International Islamic University Malaysia (IIUM) Research Ethics

Committee.

The trustworthiness of the data was sustained by following the naturalistic inquiry of Lincoln and Guba.¹¹ To affirm the credibility, regular meetings between the researcher and the researcher from the previous phase of the study were held to obtain a greater understanding of their culture. Besides that, transferability was made by using results that were applicable to other situations and populations that were also affected by flood calamity.¹² Next, dependability was established through discussion within teams and with the experts about the emerging themes of the previous study. The triangulation role was used for confirmability which consisted of the researcher, previous researcher of

Phase 1, the experts and the key informants. After the list of disaster kits was discussed and finalized within the teams and with the experts, a feedback was obtained from the key informants so that it suited their cultural context. After that, there was a further revision by the researcher to confirm the list of disaster kit. Finally, the development of the disaster kit was completed.

RESULTS

The description of the findings begins with a summary of the situation faced by the key informants. The prominent features found are the experiences of the community dealing with flood disaster based on cultural context.

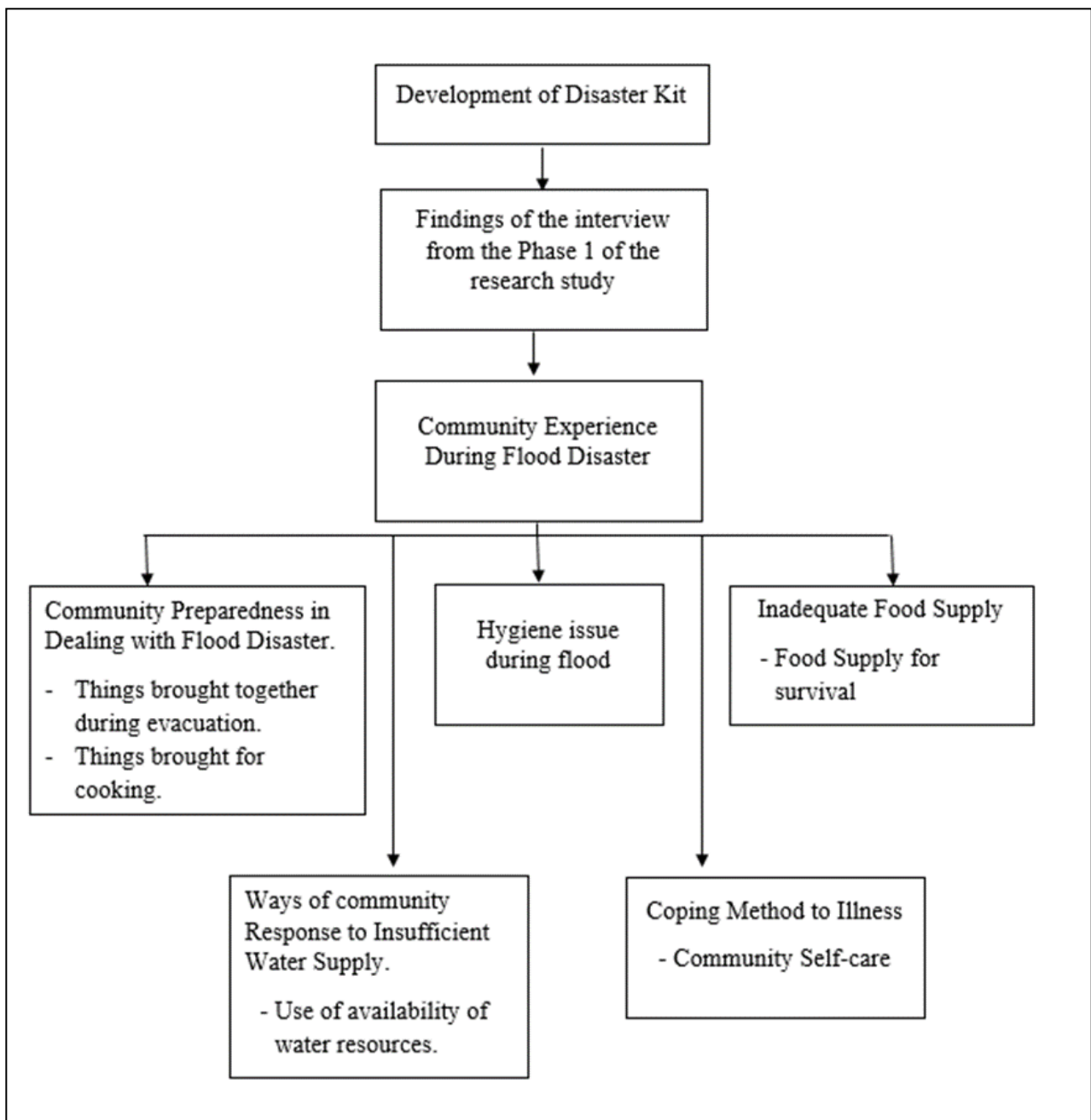


Figure 1: Schematic Analysis

Community preparedness in dealing with flood disaster

Things brought together during evacuation

Monsoon season in Kelantan usually occurs at the end of the year. Hence, most of the key informants usually carry out early preparation before the flood disaster strikes. In their preparation, most of them keep vital documents or letters and several clothes in a bag and bring it with them during the evacuation.

“For me, I bring all the important things during evacuation. I prepare it and keep it in one bag. For example, all my land grants, wallet, and other important documents ” (KI 49, GM)

Besides that, some of them also take their belongings and important things in a relative’s house which will not be hit by the flood early before the flood strikes.

“Usually when I move, I will move all important documents and things that I need to my relatives’ house that is not affected by a flood....and keep it in a bag ...” (KI 5, KK)

Somehow there are also some key informants who are not well prepared as they assume the flood will not strike as drastically as it does. Thus, most of them bring the vital things that they can reach and evacuate from the house.

“I did not have time to pack all things. I just evacuated without bringing anything except only important letters and documents. Most of us do not expect that the flood will be this big compared to the flood calamity that occurred in 1967 and 2001 ...” (KI 13, GM)

As most of the victims are Muslim, prayer is one of the compulsory things that they need to do if they are physically and mentally healthy. In order to pray, some of the key informants, especially women, bring along their veil, while for men they pray by using a clean cloth or sarong.

“I borrowed a veil from that house. However, I also brought my veil during my evacuation. It is important. Then I also bring my wallet, all documents, all important letters and land grant.” (KI 27, KK)

Things Brought for Cooking

In preparation for the inadequate supply of food during a flood disaster, some of the victims brought their own food and cooking utensils during the evacuation.

“I bring several clothes, stoves and a gas tong. At that time, the water was not high, so that’s why we could carry it from our quarters to the school and stayed at level 3.....” (KI 9, KK)

There were also some difficulties that were experienced by mothers with babies because they did not prepare well for the need of their babies during evacuation.

“During evacuation, I forgot to bring her nappies. So, I have to borrow some nappies from others. I just bring her bottle milk, powder milk and some of her clothes... Luckily I bring her blanket so that she will not be cold and can sleep on it...” (KI 41, KK)

Hygiene Issues During Flood

In terms of women flood victims regarding their menstruation period during a flood disaster, some of them had problems getting some pads and managing their cleanliness during menstruation. Also, because there were no proper places or any additional plastic to dispose of the used pads and nappies, most of the women and mothers just threw them away and they accumulated in one place that made other people uncomfortable.

“There are some of the mothers, after they clean their children’s faeces, they do not throw their diapers away properly ...” (KI 34, KK)

Inadequate Food Supply

Food Supply for Survival

There were several ways that villagers would overcome an inadequate food supply. Some of them had to take risks by swimming over the flood water to other people’s shops or houses to get a supply of food. Other than that, some of the villagers got food by taking floating food near their shelters.

“Luckily the owner of the house that I stayed in during the flood disaster had some food supplies. Besides, other younger kids collected several foods that were floating

nearby the house. It included all the Maggi that they found ..." (KI 46, KK)

How the Community Responds to Insufficient Water Supply

Uses of Availability of Water Resources

Some of the villagers found an alternative by using flood water, rainwater, mineral water, or storage water for multipurpose uses such as for ablutions, bathing and washing. This is because most of the pipe water was cut off and availability of clean water was reduced.

"Before we evacuated, we used flood water to take ablutions. When we lodged in nearby houses, we used their storage and rainwater for multipurpose uses." (KI 25, KK)

Other than that, there were some of them who used any water resources available nearby to cook and drink.

"There is no clean water. Almost nothing. My sister was the volunteer to cook. She told me that she cooks without salt and had to use flood water to cook..." (KI 8, KK)

Coping Method with Illness

Community Self-Care

During the evacuation, some of the victims brought along their sick family and their own medications.

"I bring my brother's medication and blanket that he used. Besides that, I also bring my medication and put all medication needed in one bag..." (KI 40, KK)

DISCUSSIONS

Unpredictable floods usually lead to poor preparedness in the community and cause them to face a lot of hardship when evacuating. Therefore, the researcher has developed a disaster kit based on the experience of the community in dealing with floods. The main purpose of this development is to provide the specific household needs during evacuation in a flood disaster. Hence, it may increase their knowledge in knowing what to do or what to bring and enable them to take prompt action during a flood calamity based on their cultural context.

Development of disaster kit

The disaster kit is a stored kit consisting of the

items that are needed for preparation during a disaster. In this study, the development of a disaster kit is categorized into seven kits which is based on the needs of the communities in the findings in Phase 1 of the research.

However, during the flood disaster most of the key informants bring only the important things. For instance, they prepared one bag that consisted of important documents, several clothes, wallet, foods and water, spare house, car keys and mobile phone. During the flood water rise, most electricity and water were cut off. So, at night most of the villagers had difficulties moving around as there was no light. Thus, it is important for them to prepare enough candles, a lighter, flashlight and batteries during evacuation. Other than that, there is a need for a battery-powered radio, additional batteries and a power bank for them to be updated with the news regarding the flood. As the victims tend to get cold, especially at night, small blankets are also important to bring.

When the flood disaster occurs, most of the key informants evacuate by bringing along important items and documents. According to the National Disaster Education Coalition, all important data and documents should be safe and need to be brought during evacuation¹³. The documents should be kept in a safe deposit box, and copies in a waterproof, fire-resistant portable container. Based on the interviews, example of important documents are identification cards, birth certificates, land grant, vehicle grant, death certificate, marriage certificate, children's certificates, will documents, and important letters.

Usually the victims keep all the documents in one bag or closed container. Either they put them in high places in their house, bring them to others' houses that are never affected by flood or bring them to the evacuation center. In addition, to avoid the important documents, certificates or letters getting wet and being ruined, it is advisable to laminate them in waterproof files and keep them in a waterproof bag.

Food scarcity always occurs during massive catastrophes such as floods. During evacuation, the victims cannot bring sufficient foods as they must ride in a boat with a limited amount of total weight. However, some of the key informants who evacuated

Table 1: List of the Disaster Kits

Kit	Content
<ul style="list-style-type: none"> • General Supplies Kit 	<ul style="list-style-type: none"> • Travelling bag • Flashlight and batteries • Candles and matches/lighter • Blankets • Toilet paper/tissue • Hand phone (fully charged) • Power bank (fully charged) • Spare house and car keys • Portable radio and batteries • Multipurpose tools
<ul style="list-style-type: none"> • Emergency Food and Water Supply Kit 	<ul style="list-style-type: none"> • 3 days’ supply: • Canned foods – sardines, tuna, soups (with high liquid content) • Dry mixes – salt-free crackers, whole grain cereals, whole bread • Food for special diets and requirements: • Babies: Powdered milk (optional) • Elderly: Specific milk (optional) • 1.5L mineral water – bring additional water if needed.
<ul style="list-style-type: none"> • Basic First Aid Kit 	<ul style="list-style-type: none"> • Additional: • Prescribed medication for daily use such as insulin, heart medicine, and asthma inhaler (bring for 3 days in container/plastic) – note down the labelling, purpose, expiry date, dose/day of all medications. • Non-prescription drugs such as aspirin or non-aspirin pain reliever, anti-diarrhea medication, antacid and laxative, cough relievers, oral rehydration sachet. • Traditional medicine (optional) such as sea cucumber oil, Mestika oil.
<ul style="list-style-type: none"> • Hygiene Kit • (Provide one small bag) 	<ul style="list-style-type: none"> • Toiletries: soap, toothpaste, toothbrush. • Alcohol-based sanitizer. • Wet tissue • Women: disposable pads (3 days’ supply), disposable underwear, plastic bags (Menstruation Kit) • Plastic bags
<ul style="list-style-type: none"> • Documentation Kit • (Provide waterproof bag) 	<ul style="list-style-type: none"> • (All documents laminated/digital form – optional):- • Waterproof file • Wallet with extra cash • Insurance document • Birth certificate • Medication list and pertinent medical information • Family and emergency contact information • Land grant • Passport • Baby book record • Immunization records (if any) • Inventory of valuable household goods • Bank account information • Important telephone numbers, and family records
<ul style="list-style-type: none"> • Prayer Kit 	<ul style="list-style-type: none"> • Veil • ‘Sarong’ • Spray bottle with water (1.5L) • Small bag
<ul style="list-style-type: none"> • Additional: (Optional) • Baby Kit 	<ul style="list-style-type: none"> • Small bag • Wipes • Bottle milk • Powdered milk • Nappies • Clothes (3 days) • Blanket • Thermos (water container)

early had brought along some food and shared it with others. Other than that, some of them had to swim over flood water and went to a shop nearby to get food. Thus, the food supply during an evacuation is important for survival. According to the Sphere Project, access to food and sufficient nutritional status are vital to individuals.¹⁴ The food supply must be prepared for at least 3 days, bottled water in the range of 3 liters, and canned goods with a long shelf life.

Since Malaysia is one of Asia's Islamic countries, prayer is one of the obligatory acts of worship that every Muslim does every day in any condition even when disaster strikes. Based on the findings, the key informants had difficulties in finding clean water and clean cloth to pray. Hence, a proper prayer kit that includes a container containing clean water for ablution, a veil for women, and sarong for men are important needs for performing their obligations.

It is important for the communities to create sanitary barriers as a first response at the shelter or any evacuation center as a disaster can affect the health of communities in many ways.¹⁵ Hence, to avoid any illness because of disaster, a hygiene kit needs to be prepared. This kit consists of basic needs in daily life for hygienic care, such as wet tissue and an alcohol-based sanitizer. Besides that, during a menstruation period, a woman tends to feel pain, and may not be able to manage menstrual hygiene.¹⁶ So, pads for women could be prepared in this kit together with plastic or paper bags for disposal. Moreover, a baby's skin is sensitive to an unclean environment and their needs such as nappies, wet wipes and blankets should be fulfilled. By having this kit, their cleanliness is provided for.

Besides that, unpredictable or unwanted events can cause injury. As a first treatment, it is important to bring along a basic first aid kit which consists of the basic aids such as bandages, cotton wool and antiseptic solutions. Other than that, basic medicines such as paracetamol and local ointments could also be used in an emergency situation. Sometimes, the villagers also prefer to use their own traditional medicine in an emergency. For people who have an underlying disease, prescribed medication for daily use such as insulin, antihypertensive medication, and asthma inhalers

are important to bring during an evacuation: at least three days' supply.

To prevent any unwanted difficulties for the babies, their basic needs during the flood disaster must be met. Thus, the mothers need to prepare all the things that are needed before a flood disaster and bring them at the evacuation. For example, the mother must prepare one small bag, a baby kit, containing all the baby's needs such as powdered milk, nappies, blanket, several clothes, enough warm water in a thermos, and baby wipes.

All in all, most of the key informants might not state the things that are needed during the evacuation.^{17,18} This is because their thoughts and actions are influenced by the events that they have experienced. Without thinking, they have missed a few things that they also need to bring along. Here are the list of suggested items as preparedness for the flood disaster in Table 1.

CONCLUSION

The findings obtained through this study have led to new knowledge on flood disaster management for communities based on their cultural context. The development of a disaster kit for households during an evacuation will help the community to be more aware and prepared before the disaster strikes. Thus, it helps the community in handling and managing the situation and reduces the impact of losses when the flood disaster occurs.

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