

Community Experiences on Prevention, Preparedness and Recovery of The Flood Disaster in Cultural and Local Wisdom Context

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ABSTRACT

Objective: This qualitative descriptive study, underpinned by the naturalistic inquiry, explored the experiences of each level of households during and after the devastating flood disaster occurred in Kelantan, based on their cultural and local wisdom context. **Methods:** Three most affected districts were selected in this research: Gua Musang, Kuala Krai and Kota Bharu. Data gathered in this study was the researcher himself, in-depth interview guides, tape and video recording of interviews and a diary of the study for the duration of four months. Individuals from each level of the household were taken as a key informant. **Results:** Based on the data gathered from key informants, the prominent features of this research are: community preparedness in dealing with floods, uneven distribution of rains, unpredictable flood water level, inadequate food supply and preparation, the proper salvation of community in self-rescue, effectiveness of communication during evacuation, inappropriate manner, water rise indication at a certain area and signs of nature. **Conclusion:** These findings were reflected in the experiences together understanding the value of local wisdom and cultural faced by key informants dealing with the flood disaster and it would be used in creating appropriate programs on preparation in dealing with such disaster in the future.

KEYWORDS: flood disaster, experience, culture, local wisdom, naturalistic inquiry

INTRODUCTION

Floods are the most common disaster in Malaysia, especially in the East Coast region which is Kelantan, Terengganu, and Pahang. Ninety -seven percent (97%) of the water on earth is salt water and only 0.014 percent are found in lakes, rivers, underground and in the air. Floods are the overflow of excess water of a drainage system. The floods that hit Malaysia can be categorized into flash flood and monsoon flooding (1). According to Geo Science Australia in November 2011, flood has been considered as phenomenon disaster which is can be defined as the covering of normally dry land that has escaped of being released by water from any lake, river, creek, or other natural watercourse, whether or not changed or modified; or any reservoir, canal, or dam (2). In late 2014, from 22 to 30 December, the unpredictable and worst flood disaster had hit the East Coast in Malaysia which were at Kelantan, Terengganu, and Pahang (3). Unfortunately, the state of Kelantan has been a huge affected by massive flood disaster because of the combination of three phenomena

which are the formation of New Moon, Winter Solstice and strong winds. In addition to the three phenomena, the situation worsened when there is high tide phenomenon or 'Spring Tides' occurred simultaneously (4). The incredible flood has surged eight districts in Kelantan which are Gua Musang, Kuala Krai, Kota Bharu, Tumpat, Machang, Pasir Puteh, Tanah Merah, and Pasir Mas. It has been reported that nearly a total of flood victims approximately 151 072 people have been sheltered in 309 evacuation centers (3). Director of Social Welfare Department in Kelantan said that, 36 128 families have been placed in flood relief centers that involved eight districts. Geographically, Kelantan has four main rivers known as Sungai Galas located at Dabong in Gua Musang, Sungai Lebir at Tualang, Kuala Krai, Sungai Kelantan at Tangga Krai, Kuala Krai, and Sungai Kelantan at Guillemard's Bridge, Tanah Merah[5]. Those main rivers have been monitored by Jabatan Pengairan dan Saliran (JPS) Kelantan. It has been reported that reading level of water for those rivers are in danger level in that year. Majlis Keselamatan Negara (MKN) and Pusat Pengurusan Bencana Jabatan Kerja Raya (JKR) have endorsed that Kelantan is the most affected state by floods. As reported, the three districts that badly affected by the flood disaster have been selected by the research team to explore and study the experiences for every level of households dealing with floods disaster. The experience is divided into two main concepts which are culture and local wisdom.

The concept of culture and local wisdom were understood so the benefits will be more valued in

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which they were imbued together in managing the disaster. The response of the flood from their inherited knowledge would measure their adaptation and mechanisms to natural hazards.

Further to this statement, the researcher need to understand in broad the meaning and concept of culture and local wisdom to be able achieve community benefits.

The meaning of culture is too broad since it involves the people and also the environment. It includes behaviour of the human and how human interact within the environment. The meaning of the culture itself is put in different depth of definition that consist observable artifacts, values and basic assumptions (6). The every aspect of behaviour and manners defined the existence of culture in a certain population. The culture actually affects the behaviour or personality of human and how the human behaves within the community (7). For instance, how the community dress up and socialize with the population. From a social scientist, culture is defined as knowledge that is not inherited nor related into genetic factor where it is actually having to be learnt (8). In a cultural context dealing with floods, the researcher can understand the community involved to mitigate with the flood disaster.

Interestingly, local wisdom is something new to be discovered. It is related in building up of knowledge from the ancestor and pass on to the others (9). Local wisdom explains about the high opinion from the elderly about their life experiences and must be appreciated. It uses individual knowledge to solve activity daily life and ability of the mind to think wisely to resolve problems practically. The use of mind everyday concerns the ability of an individual to implement the nature, personality and capability of the community to virtually answer their troubles in daily living (10). In this research, the inherited knowledge of the community will be studied and explored to identify the proper management of the flood disaster. The benefits of identifying the local wisdom help the community to adapt with environmental disaster, and help the local community to survive because of their extraordinary resilient nature (10). For instance, sign of nature like ant movement, weird attitude of animal and weather condition were used as part of their inherited knowledge in Nepal to face with the flood

Meanwhile, in Swaziland also used their local knowledge, such as measurement of the nest on trees, nature of wind, and actions of certain animals to predict natural hazards (11). Based on these concepts, the community can adapt and cope with the disaster with their local knowledge.

Hence, there is clear evidence of inadequate, such information for managing the community needs in regards to disaster relief and preparedness from cultural and local wisdom context.

The qualitative descriptive approach explains the phenomenon of this study. It is an empirical method of study that aims to describe the experience of the key informant regarding flood disaster. This approach captures and imparts an insider's perspective by focusing on the experiences of the key informants, and provides a rich and straightforward description of the event. In this research, the data collection will be collected by using in-depth interview at all level of household that have great experiences in recent

flood disaster. The interview also will be ended until data is saturated.

METHODS

The study were conducted in Gua Musang, Kuala Krai, and Kota Bharu which were the most affected area resulted by the calamity. To gain legitimized

insight into the experiences of individuals of each households dealing with the flood disaster, a qualitative, descriptive approach underpinned by the naturalistic inquiry was undertaken in this study.

Study settings



Figure 1 Map of Kelantan

The map depicts the study area selected by the researcher (Figure 1). Total population in Gua Musang, Kuala Krai and Kota Bharu is 90 057, 109 491 and 491 237 respectively (12). The key informants were selected from every level of household consisted of the following category: adolescent, young adult, adult, middle age and elderly. The researcher used purposive and snowball sampling in gaining informative and meaningful data. The inclusion criteria included only for victims who had experienced the flood disaster. The exclusion criteria were for those who never experience in flood disaster.

Ethical clearance

This study was approved by the Kulliyah of Nursing Postgraduate and Research Committee (KNPGRC) and IIUM Research Ethics Committee (IREC). Permission granted from all the head villagers that participated in the study before starting data collection. Prior interviewed, the key informants were informed about the purpose of the study and their right to withdraw from the study before signing the consent forms. They were also assured that their information given would be kept confidential and anonymous. The informed consent was obtained and there were no key informants who refused during data collection. Any informants who have post traumatic syndrome will be automatically withdrawn from this study.

Data collection

Data were collected from every level of household that really have a great experience during and after the flood disaster by using in-depth interviews. Before conducting the interview, the researcher had to identify potential informants by asking the head villagers to show the house that was affected by the calamity. From there, each of the household is approached by the researcher in person to further explain the study. Before obtain informants' written consent, the researcher had developed rapport with them so that they will be comfortable during the interview session.

All the interviews were conducted in their own pace of time and their preference place. The interview's duration were taken approximately 1 hour depends on informant involved of their desired experiences and interesting local wisdom. If more information to be shared, other appointment would be made. All the interviews were done in Malay language and in their local dialect preferences. The duration for the study is 4 months (Jun-September, 2015).

Data analysis

The data were processed after completing each interview. Four (4) component instruments were used to analyze the data; namely the researcher, in-depth interview guide, tape and video recording of the interview and a diary of the study (reflective notes). All the interviews were audio-recorded with informants' permission. The audiotapes of the interviews were transcribed verbatim. The reflective notes from the researcher were taken and read to compare with the transcriptions. This is to ensure the researchers' understanding on experiences faced by participant involved in the catastrophe. To process the interview data, the qualitative content analysis suggested by Graneheim & Lundman was used (13). In order to give the researcher to get familiar with the text; meaning unit, such as sentences or paragraph, the audiotapes and videotapes were listened and examined, and the text transcribed was read and reread to get the information about their experiences during and after the event happened based on the research question. The unit of analysis was represented into a text that gathered from the content of the key informants' experiences during and after dealing with the flood disaster. Then, the text will be referred as meaning unit that will be condensed later on. Next, a code was established from the condensed meaning units.

Data trustworthiness

The trustworthiness of the data was maintained by following the tenets established by Lincoln and Guba which is naturalistic inquiry (14). The reliability of the data was established until the data collected is saturated. Different types of descriptions were used during interview to explore the potential information and additional findings of their experiences. Credibility was determined by establishing prolonged engagement between the researcher and the key informants. Thus, the researcher may become submerged in their culture and local wisdom with examination of their professional judgement given by the key informants (15). Meanwhile, transferability is made by determining the results were suitable to be implemented to other situations (15). Therefore, the data collected were ensured

applicable to other situation and populations. To establish dependability, the preliminary categories were compared and discussed within teams. The confirmability is made by using triangulation role and researcher ability to understand Kelantanese dialect in order to minimize bias and misunderstanding in communication.

RESULTS AND DISCUSSION

The tenets for the inquiry of this research are the experience of all household based on cultural and local wisdom context.

Table 1 Demographic data of key informants (N= 77).

Characteristics	n	%	Range
Area			
Gua Musang			
Kg Lembaga	10	13.0	
Kg Kolam Mas	3	3.9	
Kuala Krai			
Manik Urai	24	31.2	
Laloh	7	9.0	
Kemubu	12	15.6	
Kota Bharu			
Kg Sireh	16	20.8	
Kg Tanjong Stan	5	6.5	
Gender			
Male	32	41.6	
Female	45	58.4	
Age			
			13-72
Characteristics of Age			
Group			
Adolescent (10-19)	13		15-19
Young Adult (20-29)	6		22-28
Adult (30-39)	5		35-38
Middle Age (40-60)	38		42-58
Elderly (>61)	15		63-72

Table 1 illustrates the demographic data of key informants participated in this research. The number of families that had been interviewed was 51.

Furthermore, the households were divided by vulnerable and non-vulnerable key informants. The vulnerable group consisted of pregnant mother, elderly and children. Meanwhile, the non-vulnerable group consisted of healthy key informants comprising of adolescence, young adult, adult and middle age. The key informants consist of 22 fathers, 29 mothers; include a pregnant mother, and 26 children; adolescent, young adults and adults. There was also no key informant experiences post traumatic syndrome during data collection.

The description of the findings begins with a short summary of the situation, i.e. experiences of the community dealing with flood disaster based on their culture and local wisdom context. The prominent features found are: community preparedness in dealing with flood, uneven distribution of rains, unpredictable flood water level, inadequate food supply and preparation, proper salvation of community in self-rescue, effectiveness of communication during

evacuation, inappropriate manner, water rise indication at certain area and signs of nature.

Experience during and after dealing with flood disaster

Community preparedness in dealing with floods

Preparedness is very important in dealing with every situation or condition. The key informants participated in this research have responded very well regarding their experiences dealing with the flood disaster, with different severity according to area. Important documents: identification cards and birth certificates should be kept in one place or bag together to ease them during evacuation. Moreover, massive catastrophe such as flood resulted in insufficient food. This condition has made them to bring along their own food together. Most of the key informants have their own vehicles. As a precaution, they use their own alternative to safe their vehicles by parking them on higher ground.

Table 2

Meaning unit	Condensed meaning unit	Code
"I just bring only two pieces of clothes, identification card, birth certificate and some rice...." (KI 1, KK)	Things that are brought together during evacuation	Community preparedness in dealing with flood
"I brought along a cloth and all important documents, including my wallet. All birth certificates of my children and wife were brought along too..." (KI 12, KK)		
"During that time, my father went home and take gas cylinder and stove." (KI 2, KK)	Things that are brought for cooking	
"I brought along my own food such as sardines. At that time, there were no help from outside to supply food. There should be enough for us to eat..." (KI 13, GM)		
"I did not expect the flood was like this and I already park my lorry at the hill nearby because it is used for my work" (KI 3, KK)	Park vehicles at the higher ground	
"The water almost enter into my car, so I immediately moved my car to the main road hoping that water will not reach that high place. Even though the water reach the main road, my car still safe..." (KI 15, KB)		

Uneven distribution of rains

The unexpected condition of the weather causes the severity of the flood in certain area. The key informants manipulated the weather differently

according to their own experiences and thoughts.

Table 3

Meaning unit	Condensed meaning unit	Code
"In that day, there are no storm but there's raining. The rain are not even..." (KI 4, KK)	Indefinite rain	Uneven Distribution of rains
"Before the flood occur, the rain was so heavy..." (KI 6, KK)	Heavy rain	
"Last year the flood came after non-stop and heavy raining. Same for this flood, that night the rain fall incredibly, and the wind was so strong..." (KI 5, KK)	Raining non-stop	

Unpredictable flood water level

Based on the weather conditions and the experiences of the key informants, they never expected that the level of water during the flood rise too high. Hence, most of them conclude that this disaster was uneventful. (refer table 4)

Inadequate food supply and preparation

The hardships were discovered from the key informants. In order to survive, they had to prepare the food using only whatever they have during that time. Some of them had to use their own efforts and took risky actions to get food. (refer table 5).

Proper salvation of community in self-rescue

Through the experiences of the key informants, it is important to have a proper plan of salvation respond to such disaster. The community showed their ability in rescuing themselves. (refer table 6)

Culture and local wisdom

Effectiveness of communication during evacuation

The way to communicate among the community during salvation is very crucial because it involves one's life in the hectic situation. Improper language had to be used in order to force the community to move to the evacuation centers. Improper spread of news to evacuate was used. Some of the key informants responded that they received the information regarding the evacuation by a person who responsible in spreading the news. (refer table 7)

Inappropriate manner

True colors of the community are shown during and after the occurrence of the flood. The behavior of the community changed due to desperate condition and situation. Some of them took advantage to get what they want without considering others who were in need. (refer table 8)

Table 4

Meaning unit	Condensed meaning unit	Code
<p>"On 3am, the water already subside about 6 inches. However, the water rise again after that. It rise just for a moment, then it subside, then it rise again until the massive flood occurs..." (KI 7, GM)</p> <p>"During the first flood happened here, I was at home. the water almost reached my floor. After one night, the level of water subsided. Then I went back to my hometown to attend my sister's wedding. There, I heard the news about this massive flood. The water level keep on rising..." (KI 5, KK)</p> <p>"Before the flood occur, the rain was not too long, compared to 2001. However, the water rise so quick and immediate..." (KI 7, GM)</p> <p>"Within 30 minutes, the water level rise about 1 foot. At that time, I send my car to other place, the water level reached my ankle. Then I remembered that I want to take my mattress at my house, and bring it to the laboratory at school. The water level reached my knee. Then I went back to take gas cylinder and stove. However, the water level already reached my waist. The water rise too quick from the river..." (KI 9, KK)</p> <p>"So, because of the unpredictable situation, the water keep rising, about 3 feet in an hour, it was so strange. Usually, it never happen before..." (KI 8, KK)</p> <p>"Usually, rain was heavy every year, but it never cause massive flood like last year. However, for this flood, it is really strange because the rain was not too heavy and massive flood happened..." (KI 10, KK)</p>	<p>Level of water rise and subside</p> <p>Immediate water rise</p> <p>Strange flood</p>	<p>Unpredictable flood water level</p>

Table 5

Meaning unit	Condensed meaning unit	Code
<p>"Rice, rotten dried fish, make porridge by flood water, drink with flood water, only the children deserve to eat" (KI 11, KK)</p> <p>Continued..</p>	<p>Use of flood water to cook</p>	<p>Inadequate food supply and preparation</p>

Meaning unit	Condensed meaning unit	Code
<p>"I wash anchovies and rice with flood water at the school stair, then, I boil them. Can you imagine the rice has sunk in mudslides about two days, it is awful smell. But I have to cook the rice together with anchovies by using flood water, we have no choice" (KI 14, KK)</p> <p>"No food supply over a week, then, after that, the supply come for distributed. I just eat Maggie and rice that can be eaten during flood" (KI 16, GM)</p> <p>"After a week, the supply is distributed, just a basis supply such as mineral water, a week before, we do not get any food supply" (KI 16, GM)</p> <p>"When water is arising, the two to three youngsters in range of age 20, swim to get some bags of rice at immersed shop nearby. They swim without hanging to ropes" (KI 18, KK)</p> <p>"On that time, my friend and I swim to catch any floated foods. About seven villagers involve in swimming" (KI 20, KK)</p>	<p>Food distribution During flood</p> <p>Food supply for survival</p>	

Table 6

Meaning unit	Condensed meaning unit	Code
<p>"At that night, there are many villagers who moved to my home, about 40 people all together. They came here because this place is a little bit high and the only house that water did not enter yet..." (KI 12, KK)</p> <p>"About 500 people evacuated from their house. There's a lot of people that we had to evacuate, but we were not going from house to house. This is because, they gathered at higher houses and shops..." (KI 13, GM)</p> <p>"There's a person, my friend's husband, he thought the flood would never reach to the market. Everyone else had moved but he did not. Then, the flood occurred, he had to hold onto the aerial on the roof, he was alone at that time. So, the villagers came to safe him with boat..." (KI 19, KK)</p>	<p>Evacuate at higher place and gather</p> <p>Rescue effort by community to evacuate</p>	<p>Proper salvation of community in self-rescue</p>

Table 7

Meaning unit	Condensed meaning unit	Code
<p>"I must use harsh words in giving instruction to move, then they will start moving. I used those words because we lack of boat for evacuation, so it is better to tell them to move earlier..." (KI 26, KK)</p> <p>"When i finished packing in this house, i went to my grandparents' house straight away. my grandparents refused to evacuate from their house, so i need to 'persuade' them to move out from there..." (KI 30, GM)</p> <p>"On that morning, some people came and asked to move, so I started to pack my things. In this area, we got the information to move from a person and we will spread it to others..." (KI 15, KB)</p> <p>"The information to evacuate from the house were given from person to person. There were also, several community that does not want to evacuate..." (KI 39,KB)</p> <p>"Usually the elders who will ordered to evacuate. And sometimes from the community themselves. They have to remind and being aware of the flood from person to person..." (KI 40, KK)</p>	<p>Use of harsh words</p> <p>Spreading information from a person to another</p>	Effectiveness of communication during evacuation

Table 8

Meaning unit	Condensed meaning unit	Code
<p>"After flood, I face the problem of stealing. Some people come here to see the effect of flood, but they take the things without permission. I cannot control them. After the massive flood, people always take advantage, for example, a lot of gas tanks have drifted away by flood, they willing to swim and steal the gas tank" (KI 17, GM)</p> <p>"On that day, the outsiders steal the motorboat cable. The people break the house and steal the things inside the house" (KI 23, KB)</p> <p>"I see the teenagers fight over foods because of rainy, they play with water and feel hungry" (KI 16, GM)</p> <p>"The people fight over food once the supply arrived, however, they want more and more, greediness has shown..." (KI 25, KK)</p>	<p>Stealing</p> <p>Fight for food</p>	Inappropriate manner

Table 9

Meaning unit	Condensed meaning unit	Code
<p>"Here, the water rise first, the villagers observe the level of flood water then decide to move" (KI 17, GM)</p> <p>"...if the river behind is overflow, it means that, the incredible flood might happen, the water rise faster" (KI 16, GM)</p> <p>"I will observe the drain that located behind that, as a landmark for flood occurrence" (KI 32, GM)</p> <p>"this area, the water rise first because of the lower ground, near the river" (KI 34, KB)</p>	Use an area as a landmark	Water rise indication at certain area

Water rise indication at certain area

All the key informants had experience flood before. So, they have their own methods in measuring the severity of the flood that occurred in their area. It has been a culture for them by observing a certain landmark. (*refer table 9*)

Signs of nature

Inherited knowledge by the ancestors has made them to realize the early sign of such disaster. Signs of nature such as weather and animal's behaviors helped them to prepare themselves in facing the calamity. Thus, these local wisdoms were used to acknowledge them for an appropriate preparedness before the disaster occurs. (*refer table 10*)

Table 10

Meaning Unit	Condensed meaning unit	Code
<p>“ it is common, if the causes of the flood is because of the heavy rain. but the rain last year is not heavy, still the water keep arising. so, where this water come from? maybe the water comes from the underground. There was one of people who at tesco saw the water came out from the underground..” (KI 35, KB)</p> <p>“there was a time when I want to throw water at under my house, I see like there was water that comes out from the underground. The water comes out like a bubbling.’buok buok’...At that time there was raining.Usually, if raining occur, the water will flow as usual...” (KI, 36, KK)</p> <p>“ Before the flood occur, I did not aware. But during the flood, the villagers said that the water rise not as usual. They saw like the water comes out from the underground...”</p> <p>“ I realized that the earthworms came out from the ground...” (KI 29, KK)</p> <p>“ I can see the earthworm came out from the ground. they were not too many but last year they were many of them. I can step on them while walking. Maybe this is the sign of massive flood. we do not have to dig and find them for fishing purposes at that time..” (KI 24, GM)</p> <p>“Just observe the earthworms. The earthworms will come out if they feel hot. That’s what people always said. Similar to this event, the earthworms started to come out because they feel hot and try to find cold place. So, what’s the old people said are true...” (KI 31, KB)</p> <p>“I realized that, there is a lot of worms come out before flood...” (KI 11, KK)</p> <p>“I am not sure but old people said that there was sound of thunder react to each other in determining the massive flood will happen” (KI 27, KK)</p> <p>“The sound of the thunder was heard here and there. they was like fighting and showed that there will be massive flood will happen. Old people said it was sign of it..” (KI 28, KK)</p>	<p>Water come out from underground</p> <p>Earthworm out from the ground</p> <p>Unusual sound of thunder React to each other</p>	<p>Signs of nature</p> <p>“I realized that the ants move into higher place. And they are in group escaping themselves..” (KI 27, KK)</p> <p>“Old people said, if the ants move into higher place, the higher the flood would be. And I realized that happened too..” (KI 23, KK)</p> <p>“I have noticed the black ants make a nest at the higher place such as on top of trees and hous-es...” (KI 32, GM)</p> <p>“the red ants make a nest at the higher place...” (KI 11, KK)</p> <p>“ like always the old people said that if the ant bring along their egg to the higher place means that flood might happen..” (KI 33, KK)</p> <p>“Before the flood happened, the cow made unusual noise. Well, animal can detect earlier the signs of flood..” (KI 7, GM)</p> <p>“The behaviour of the cow become wild than usual. They were not in a group when they were release outside of the cage. Some will go somewhere else..” (KI 24, GM)</p> <p>“There are some cows calling the calf, means the strong water will come over. The cows made noises... Animals will make noise because they know earlier the signs than human”. (KI 23, KB)</p> <p>“ ..old people said the bees move their hive into higher place. they said massive flood will occur.” (KI 7, GM)</p> <p>“ commonly we look at bee hives on the trees near the river. It was like 2 to 3 bee hives. Old people said if bee hives are moved to higher place than usual means the water will reach at that level. I saw this happens after the flood. It was really reached at that level just below the bee hives. I also cannot predict it was high like that ... ” (KI 22, KK)</p> <p>“ some old people said that bees will build their hive according to how high the level of flood water is...” (KI 13, GM)</p> <p>“Before the calamity, I observe that the nest at the higher place, bees put the hives at the hills, if the spider make a nest at the ground, it means that, the storm might happen...” (KI 16, GM)</p> <p>“ I have noticed the bees create a nest based on the level of flood water...” (KI 11, KK)</p>

Meaning Unit	Condensed meaning unit	Code
"I realized that the ants move into higher place. And they are in group escaping themselves.." (KI 27, KK)	Ant move to higher place than usual	
"Old people said, if the ants move into higher place, the higher the flood would be. And I realized that happened too.." (KI 23, KK)		
"I have noticed the black ants make a nest at the higher place such as on top of trees and houses..." (KI 32, GM)		
"the red ants make a nest at the higher place..." (KI 11, KK)		
"Like always the old people said that if the ant bring along their egg to the higher place means that flood might happen.." (KI 33, KK)		

In this research, every household responded on their experiences during and after the flood disaster and how they dealt with such calamity based on their cultural and local wisdom context. The key informants have experienced the community preparedness in dealing with floods. This finding is consistent with the International Federation of Red Cross and Red Crescent Societies, a term of preparedness is used to display the capacity of the communities in responding to calamities (16). During flood disaster, the community has made preparedness such as putting the valuable things at the higher place and brings along important documents together to the evacuation centre. The awareness rose within community when respond to the flood which create the community preparedness towards the disaster.

During a flood disaster in 2014, the community has realized that the uneven distribution of rainfall in certain areas can lead to flooding occurrence. According to Subrahmanyam the distribution of rainfall in India is not uniformly distributed because of the wet monsoon and dry monsoon, which therefore leads to the occurrence of floods in different parts of the country from time to time (17). Within the Indian context, the seasonal rainfall distribution over India leads the occurrence of the flood. Consequently, the key informants in this research emphasized uneven distribution of rains leads to massive floods in their area.

The key informants claimed that they cannot predict well the rising flood water level. Hence, they have said that the flood in 2014 is the massive flood surged the districts because of the water river rises quickly and overflow. In line with the flood occurred at Fort Macleod, according to Wright and Herald (18), the water levels on the Oldman River is unpredictable, despite of the flow had been controlled upstream, with several properties had been inundated by flooding.

Furthermore, inadequate food supply and preparation is one of the profound effects of the flood disaster. The key informants had insufficient of food supply at the evacuation centre because of the supply cannot be delivered to their places because of water rising and strong current of

water. Dewan, said that communities apply pre-flood preparations as a part of the flood management (19). For instance, the management comprised of basis things such as cooking utensils, dry foods, fuels, and matches.

Kummerfeldt (20) defined the meaning of self-rescue as getting self out of trouble without having to put other people at risk to rescue. The sudden flood occurred needs a self-rescue by running to higher place such as at hills or to non-affected area. Most of the key informants rescue themselves to the hills together bring with their things for survive. It means that, they have a capability in self-rescue without waiting for rescuer team to help in moving to evacuation centre.

Theft is the problem faced by the most key informants after the flood diminished. One of the household complained that the people took an advantage in stealing things during and after calamity as an inappropriate manner. It became a common behaviour implemented within the community as nature of human to behave in such way (7).

Early warning signs are very crucial during evacuation take place. The information delivered between the key informants to evacuate was very valuable and meaningful as it helped them to prepare and ready for movement. Thus, communication during the calamity will provide a way in imitate the mischief from the disaster and consequences of the aftermath event (21).

Signals or indicators from the certain area were used as their observational signs to evacuate from the key informants. The most prominent indicator used was by observing the level of the water rise behind of their houses. The observational signs showed were already implemented and practices by the previous community as precaution to face with the disaster (6).

Inherited knowledge practices were used as the valuable thought from the old folks. Nepal had used their local inherited knowledge in implementing management of flood such as sign of nature to cope with the flood (19). In such statement, our findings had found similarities on certain signs such as abnormal behaviour of animals as an indicator early warning signs of flood. Therefore, our findings on signs of nature can be used on the next research questions.

Limitation of the research

The experience of every level of household dealing with the flood disaster based on cultural and local wisdom context were explored in this study. Throughout this research, the key informants of adolescent and school age were hardly to approach. This is because, most of the young adults were at school. Meanwhile, the adolescent who were involved in the flood disaster were working.

The findings from the youngest age group also were difficult to gain because most of them cannot give as much data based on research question given. Other than that, the distance between these three main study areas are further with each other. Thus, the researcher had limited time to interview as many key informants in each area. Prior interview, several key informants requested that the researcher had to meet them based on their preference places such as outside of their house. Hence, not all family members of key informants

were interviewed.

CONCLUSION

This research explored the experiences of each level of household dealing with flood disaster based on local wisdom and cultural context. The finding encompasses the experiences of key informants during and after the flood disaster among the community by using in -depth interview. The key informants taken were from vulnerable and non-vulnerable groups. The findings were included from the meaning unit, and it will be condensed to get the codes. The codes are the community preparedness in dealing with flood, uneven distribution of rains, unpredictable flood water level, inadequate food supply and preparation, proper salvation of community in self rescue. Moreover, from cultural and local wisdom context, the findings that can be conclude are that the effectiveness of communication during evacuation, the inappropriate manner, water rise indicator at certain areas and most importantly the new knowledge about the signs of nature. In overall study, the researcher would be focusing on three main phases which are (1) exploring the experiences of the community dealing with the flood disaster,

creating awareness for all levels of a household for river basin management and (3) develop educational package based on their needs (knowledge of climate change in readiness, household kits for flood disaster to be carried along during evacuation in the context of culture). Thus, the first phase objective was concluded in this article. The findings from this research will be the preliminary data for the researcher in continuing the next phase later on.

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