

## **A PRELIMINARY ANALYSIS ON THE IMPACT OF FLOOD AND THE AWARENESS OF THE FLOOD VICTIMS TOWARDS TAKAFUL PROTECTION: A STUDY OF EAST- COAST MALAYSIA'S FLOOD VICTIMS**

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**Abstract:** *In Malaysia, there has been frequent large-scale flooding in the recent years that resulted in damage in property and giving impact on the livelihood of the people, particularly in the east-coast regions of the country. The objective of this study is twofold. First, it aims to investigate the impact of the flood on the socio-economic livelihoods of the victims, and second, to explore the awareness among the flood victims towards a Takaful protection to enable them to better cope with the flood risks. In terms of methodology, survey method has been adopted to 147 respondents who were affected by the flood in the flood-prone areas in the states of Kelantan and Pahang. Based on simple descriptive analysis, it is found that flood had affected the victims financially especially on their sources of income. In terms of awareness towards Takaful schemes, majority of the victims are aware of Takaful, yet about 30 percent of them are uncertain about the existence of Takaful schemes that may reduce their financial losses when the flood hit. Furthermore, the victims also have limited knowledge on the amount of Takaful contribution that they have to pay for flood coverage (41 percent) and they are uncertain on their capability to pay the monthly Takaful contribution in future (44 percent). The findings of this study provide important inputs on the possibility of establishing an affordable micro-takaful meant for future financial protection as a safety net especially for the lower income and most vulnerable flood victims in the country.*

**Keywords:** *flood, micro-takaful, awareness, Islamic finance, Malaysia*

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## Introduction

Since the weather is caused by natural factors, humans can only anticipate and make preparations to cope with weather disasters. Weather disasters are natural phenomena, which include floods, disrupt the economy, destroy infrastructure, and affect livelihoods. The world's climate has always been influenced by the interaction between the Earth's atmosphere and the oceans, and this is a natural phenomenon (Justin, 2012). As documented for centuries, the trends in disaster losses showed that (Intergovernmental Panel on Climate Change, 2007):

1. Economic losses from weather- and climate-related disasters vary from year to year and place to place, but overall have increased
2. Total economic losses from natural disasters are higher in developed countries
3. Economic losses expressed as a proportion of Gross Domestic Product (GDP) are higher in developing countries
4. Deaths from natural disasters occur much more in developing countries. From 1970 to 2008 for example, more than 95% of deaths from natural disasters were in developing countries
5. Economic losses from weather- and climate-related disasters have been heavily influenced by increasing exposure of people and economic assets.

The flood situation today is a natural phenomenon that gives more adverse effect than a good impression. In the old days, people expect the flood to clean and nourish the plants. Nowadays, however, flooding has brought greater impact not only on the economic, political, social, and technology but it has also affects individuals both spiritual and physical aspects. Flooding can be very distracting, leading to a widespread collapse of infrastructure. They are the leading cause of death due to natural disasters around the world with 6.8 million deaths in the 20th century. Floods occur due to various factors. With the exception of some floods generated by dam failures or landslides, floods are climatological phenomena influenced by the geology, geomorphology, and relief, soil, and vegetation conditions. Meteorological and hydrological processes can be fast or slow and can produce flash floods or more predictable slow-developing floods, also called riverine floods. The universal waves of the flood formerly also been thought by Mooney (2010), Pradhan (2009), Berz (2000) and Ghani et al. (2009) but there is minor evidence on the influence of mid-term and recovery of flood events.

Problems associated with flooding have increased and there is a need for an effective analysis to understand the impact of floods as well as to find ways on how to reduce the impact of the disaster. Disaster management is a complex series of activities that include risk assessment, prevention measures, and preparedness to cope with future disasters, emergency response to a disaster, recovery and reconstruction. Good development and community preparedness can reduce the impact of a disaster especially for the most vulnerable people, such as those living in hazard-prone areas with few financial resources to help them recover if they lose their means of livelihood. This research thus is conducted to observe the impact of flood to the victims in the Malaysian context especially in terms of financial aspect, health, and sources of income. It is further extended to examine the awareness of the flood victims towards the Takaful scheme that may assist them to reduce the financial burden caused by flood.

The remaining part of the paper is structured as follows. Section 2 provides a review of flood disasters around the world, whereas section 3 discusses the existing insurance schemes to cater the flood among the developed and developing countries. Section 4 briefly explains the

methodology adopted in this research, followed by the discussions on the results of data analysis. Finally, section 5 highlights the major findings and concludes.

## **Literature Review**

### ***Flood Disaster: the Scenario throughout the World***

#### ***Australia***

Australia experiences a range of meteorological and geological hazards. Some natural hazards occur only in certain climatic, geological or topographic regions, while others have a high potential of occurring anywhere on the Australian continent. In Australia, natural hazards are projected to total an average of \$1.14 billion yearly (BTE, 2001) but the cost of individual hazards can be much larger. For example, in 1989 an earthquake cost the community in the New South Wales city of Newcastle an estimated \$4.5 billion. Heavy rains in Australia can cause both types of riverine flood and flash floods. Records of flood impacts extend back further than those for many other hazards, with the first recorded death in 1790 (Blong, 2005). Although flooding is estimated worst natural disaster in Australia, the effect is not always negative. Floods are part of the natural cycle and can have benefits for the environment and social development, especially in areas that have experienced drought. Since then, there were more than 2,300 deaths in Australia each year. Estimated annual cost of floods in Australia is to reach \$ 314 million (BTE, 2001).

Australia continues to cope well with natural disasters through well-established and cooperative emergency management arrangements, effective capabilities, and dedicated professional and volunteer personnel. In February 2011, the Council of Australian Governments released a National Strategy for Disaster Resilience to provide high-level guidance on disaster management to all tiers of government, business and community leaders and the not-for-profit sector. Australians are also renowned for their resilience to hardship, including the ability to innovate and adapt, a strong community spirit that supports those in need and the self-reliance to withstand and recover from disasters. Disaster Risk Reduction (DRR) denotes to actions that intentionally to aid peoples prone to tragedies by reducing their vulnerability or the probability of a disaster happening, and improving their ability to respond and survive. It encourages a range of activities and reserves, from flood shelter mechanisms, livelihood diversification and safe building practices, to cyclone shelters or evacuation routes. DRR is created on the awareness that readiness and mitigation are far better alternatives to the persistent mobilization of resources every time a disaster strikes.

#### ***United States***

Flooding is one of the main causes of loss of some natural disasters in the United States, which in 1990 alone, the cost has reached about \$50 billion in property damage. To manage the risk of flooding and reduce the cost of future disaster relief, the United States invests substantial resources in the area of flood hazard mapping and provide federal flood insurance to residents in communities that regulate flood plain development will come. Federal Emergency Management Agency (FEMA) and Flood Insurance Rate Maps (FIRMs, hereinafter referred to as flood maps) are used to set flood insurance rates, regulate floodplain development, and deliver percent annual chance flood hazard to those who live in the flood plains.

Learning from the many incidences of flooding in the country, many call for the real estate agents to include natural hazard information in property profiles. This could be done by providing a yearly notice of hazards faced by each premise in their rates notice and ensuring risk caveats on properties are easily located by potential home owners. Instead, insurance provider must play a key role in encouraging greater flexibility. They need to charge insurance to reflect hazard exposure and encourage the uptake of insurance. And they also need to provide information to individual policy holders on the risks associated with their property. In regards, public information on the risk history of a particular area should be widely available.

**China**

Floods and landslides triggered by continuous heavy rains since mid-May last year (2015) has destroyed more than 980 counties in 24 provinces, autonomous regions and municipalities of China that affect millions of people and killed more than 500. As the rains have flooded both two major belts and small rivers, including the Yangtze and Huai River areas, almost five million people have been displaced because of farmland and villages they have been submerged in water. Drinking water sources are under great threat and temperatures across the nation have risen to 36-40 degrees Celsius. Millions in temporary shelters face more health risks and discomfort. Many of the affected areas saw the worst flooding in more than a century and in some cases the worst in recorded history. They are also minority groups living in remote, often inaccessible, areas of mountainous regions in the central and southern provinces. The worst area including some of the poorest farm communities along the Huai River basin in Anhui province, thousands of poor minority communities in mountainous Guizhou province and along the Yangtze River in Hubei Province, Sichuan Province and Chongqing municipality and surrounding agricultural land.

The Red Cross Society of China (RCSC), Red Cross volunteers in China, Hong Kong and Macau and the Federation have taken to the streets to raise awareness and mobilize funds to assist the relief efforts in China. These efforts mostly concern on the most vulnerable communities from impoverished areas that consist of ethnic minorities unsupported by conventional aid. Red Cross Society of China and the Federation provide support to these communities for immediate critical relief as well as co-fund their own rehabilitation and return to regular life (China: Floods; Emergency Appeal no. MDRCN002, 2007). Table 1 below shows countries that most affected by flood from the year 1900-2005.

Table 1: The most affected countries by water-related disasters

Countries most affected by water-related disasters (1900-2005) sorted by number of people killed and affected					
Country	Date	Killed	Country	Date	People Affected
China P Rep	Jul-1931	3,700,000	China P Rep	6-Aug-1998	238,973,000
China P Rep	Jul-1959	2,000,000	China P Rep	18-May-1991	210,232,227
China P Rep	Jul-1939	500,000	China P Rep	Jun-2002	190,035,257
Indian Ocean	Dec-2004	250,000	China P Rep	Jul-1996	154,634,000
China P Rep	1935	142,000	China P Rep	23-Jun-2003	150,146,000
China P Rep	1911	100,000	India	7-Jul-1993	128,000,000
China P Rep	Jul-1949	57,000	China P Rep	May-1995	114,470,249
Guatemala	Oct-1949	40,000	China P Rep	Jun-1999	101,024,000
China P Rep	Aug-1954	30,000	China P Rep	14-Jul-1989	100,010,000
Venezuela	19-Dec-1999	30,000	China P Rep	Jun-1994	78,974,400
Bangladesh	Jul-1974	28,700	Indian Ocean	Dec- 2004	5,000,000

Table 2: Countries most affected by Water-related Disasters (1900-2005). Based on: "EM-DAT: The OFDA/CRED International Disaster Database, Université catholique de Louvain, Brussels, Belgium".

### *Awareness on Takaful Scheme*

Studies on Takaful began to surface in the 1990s and initially, the focus was only on the conceptual and operational basis of Takaful. However, since the year 2000, many researchers have attempted to gauge public perception towards Takaful products. Among them are Syukriyah (2004), Hakiminhafiz (2004), and Burhanuddin (2004). On the other hand, some researchers were interested to look at the understanding and knowledge of Takaful products among Malaysians, particularly among the Muslims. Researches on this issue were conducted by, among others, Syukriyah (2004), Mohamad and Mohd Sukki (2009), and Noor Hashim (2009). Most of the researchers are in agreement that public understanding towards Takaful products particularly among the Muslims is significantly low. Among them are Noraida (2004), Syukriyah (2004), Hamid & Othman (2009), and Noor Hashim (2009). In this context, the majority are of the opinion that there is a need for efficient and effective marketing effort. This requires the Takaful workforce to perform their tasks generously, responsibly, and professionally.

Meanwhile, researchers including Yon Bahiya, Siti Zaleha, and Norshahida (2009) have further investigated the awareness among the Malays on Takaful products and schemes. They found that the Malays are generally aware of Takaful, but their level of confidence towards the products is still low. This has contributed to Takaful's low penetration rate and the low demand for Takaful products. Some encouraging signs however, can be seen in the last few decades. Findings from the study by Mohamed et al. (2013) indicates that marketing channels and practices play a significant role in increasing the level of confidence among the public, which in the end will boost Takaful's penetration in the insurance market.

### *The Malaysian Climate: The Cases of Flood in Kelantan*

Malaysia is also not secured from the flood disaster. Peninsular Malaysia faces the most extensive flood destruction in the history of Malaysia where in the year of 1926, a severe flood with heavy winds destroyed most of the state in Peninsular Malaysia including the study area. Flood occurrence in the year of 1988 also is a one of the most destructive flood in history of Malaysia where 55 lives were loss due to the impact of the disastrous flood. Subsequently, the numbers of evacuees leave the region and death is decreasing because of the improvement in precaution and mitigation by the government.

The flood in East Malaysia including Kelantan, Terengganu, Pahang and Johor that happened in late December 2014 was an unprecedented act of nature that displaced hundreds of thousands of Malaysians from their homes and causing massive damage estimated at nearly billions of ringgit. Due to the lack of preparation for such an event, homes, belongings and lives were unfortunately lost in the flood-waters; the extent to which could possibly be reduced if proper practical mechanisms are well-organized onward. The Nation Security Council (NSC) confirmed the huge flood that hit Kelantan in December 2014, was the worst in the 30 years history of the state, with a record number of over 45,000 victims looking for shelter at evacuation centers. The unprecedented floods in Kelantan have caused an estimated RM200 milions in losses. The floods has exaggerated basic infrastructure in the towns of Gua Musang, Kuala Krai, Tanah Merah, Tumpat, Pasir Mas and Kota Bharu. A total of 516 houses were destroyed in Gua Musang and 38 houses were swept away in Kuala Krai (Pertubuhan Arkitek Malaysia, 2015).

People vary in how they respond and what affects them. Some people may be managing the situation. However, others may be finding it difficult to cope and are unsure of what the future

may bring. Importantly, most people do experience healing and recovery following painful experiences as they rebuild their lives and develop new strengths. While recovery takes time, there are things we can do for ourselves and others that helps the healing and rebuilding process. According to Global Education (2010), such disaster generates unique circumstances and the reaction needs to be tailored to meet the specifics of the following situation:

1. Estimating the needs – working out what is required, in what quantities, and for whom
2. Basic necessities – procuring and distributing food, shelter and clothing
3. Communication – providing affected people with information, fundraising
4. Empathy support – counselling and reuniting separated families
5. Sponsorship – obtaining, allocating and accounting for money
6. Gender – understanding the roles of men and women in families and communities to identify needs and ensure the fair distribution of resources
7. Health and well-being – providing medical care and preventing the spread of disease through immunisation, the provision of safe water and food, waste disposal and burial of the dead
8. Infrastructure – rebuilding roads, electricity and telephone networks, water pipelines, and waste disposal systems.
9. Living and economy – assisting people earn a living to speed their recovery
10. Logistics – transporting people and equipment
11. Search and rescue – finding those who may be trapped under debris

### ***Flood Insurance in Developing and Developed Countries and Issues***

Currently, many of developing countries do not have flood insurance or special state compensation scheme to cater for flood catastrophic. Commonwealth countries in 1976 in-principle support the idea of having Natural Disaster Insurance Scheme but in 1979 it was rejected by new treasurer (finance ministry) during that time. Among the reasons are government should avoid intervention in matters that can be handled by private sector and it is budgetary inappropriate as when the disaster hit the country, a portion of government budget would be prepared to cater for all losses.

On the other hand, the developed countries like United Kingdom (UK) are more advanced by depending on the private sector to provide flood insurance. Insurance companies in UK are pressured by government to provide flood insurance with affordable premium. In order to do so, the UK government seriously invest in flood mapping across the entire UK and committed to mitigate flood risk through flood prevention. For example, the government builds barriers along Thames river to minimizing the flood risk and systematically plan the usage of land. Meanwhile for Spain and France, the states initiate the insurance schemes.

In Australia, most of the homeowners own flood insurance but the Australia government still struggles to make sure those who lives in high risk areas insurable. The statistic of 90% of insured homeowners in Australia suggested that it is a norm for the homeowners to have flood insurance there. However, Australian government still not happy with the findings. This is because the homeowners without flood insurance are those who live in the areas with high probability of flood. Among the reason of not buying flood insurance are due to high premium. This issue will resolve if all stakeholders; especially government, policy holders and insurance companies share the risk. Therefore homeowners will have affordable cover. Through some control and prevention measures, this will help to mitigate risk and the impact will be on flood insurance pricing. This will penetrate the market for flood coverage.

The United States also have offered flood insurance to their home owners with the National Flood Insurance Program (NFIP) in 1968. This program is administered by Federal Emergency Management Agency (FEMA). The NFIP work closely with all insurance companies that offers flood insurance. In this insurance policies, the rate and the contents are

similar regardless from where the homeowners buy the flood insurance. There are few types of coverage offered by this scheme such as personal property coverage, building coverage, debris removal coverage, special coverage and cost of compliance coverage. The unique coverage like special coverage helps the property owners to get temporary coverage for property that moved to different area due to flooding. The residents in the high risk flood area are force to participate in this program. Renters residing in the area that participating in this program are also eligible to buy flood insurance. The government of US aware that many properties in flood area are still uninsured or underinsured as homeowners expecting federal government disaster grant. FEMA also aware that 50% of households in low risk flood zone have a believe that they are not eligible to buy flood insurance and participate in NFIP. Recently, FEMA was authorized to secure reinsurance from the private reinsurance company. This was done through Water Flood Insurance Reform Act of 2012 and the Homeowner Flood Insurance Affordability Act of 2014.

### ***Existing Takaful Products Offered Flood Coverage***

In the context of Malaysia, several existing Takaful schemes are offered by the Malaysian Takaful operators that cater the flood coverage currently. Table 2 shows that, four (4) out of the eleven (11) operators that currently have Takaful licence in Malaysia, have not offered any coverage on flood both through their general or family Takaful schemes. They are; AIA Public Takaful Berhad, Am Metlife Takaful Berhad, Hong Leong MSIG Takaful Berhad, and GreatEastern Takaful Berhad. The rest eight (7) operators have recently offer Takaful schemes either via direct flood covered or additional flood/disasters rider to the existing scheme. They are; Etiqa Takaful Berhad, HSBC Amanah Takaful, Prudential Bsn Takaful Berhad, Sun Life Malaysia Takaful Berhad, Syarikat Takaful Malaysia Berhad, Takaful Ikhlas Berhad, and Zurich Malaysia Takaful Berhad. The flood coverage are basically attached with Fire Takaful scheme, Motor Takaful scheme, Houseowner Takaful scheme, or Household Takaful scheme. Overall, it can be concluded that majority of the Takaful operators in Malaysia have concerned on the flood that hit the country which is proven via flood risk coverage offered in the schemes. This research hence is conducted to examine the victims' awareness on these schemes.

Table 2: Existing Takaful Products Offered Coverage for Disasters

No.	Takaful Operator (TO)	Takaful Product	Types of Protections	Amount of Protections	Remarks
1	AIA Public Takaful Bhd	N/A	N/A	N/A	The TO only offers family takaful products.
2	AmMetlife Takaful Berhad	N/A	N/A	N/A	The TO only offers family takaful products.
3	Etika Takaful Berhad	Rumah Desa Takaful Plan	Damage to house due to fire, lightning, flood, storm and explosion caused by gas used for domestic purposes. Damage to house contents, specifically television set, washing machine, refrigerator, sofa and bed.	Up to RM20,000.  Up to RM2,500.	This product covers all types of houses. Breadwinner of the family is also protected with personal accident takaful as an additional benefit.
		Private Car Takaful	Falling objects unless caused by flood, storm or natural disaster.  Loss or damage to vehicle due to fire, explosion or lightning.	Not mentioned.  Not mentioned.	
		Homeowner/ Householder Takaful	Fire, lightning, thunderbolt and explosion. Aircraft and other aerial devices or articles dropped therefrom. Hurricane, cyclone, typhoon, windstorm, earthquake, volcanic eruption and flood.	Not mentioned. Not mentioned. Not mentioned.	This product protects the loss of or damage to the building or contents of residential houses, flats and condominiums (excluding buildings under construction).
4	Great Eastern Takaful Berhad	N/A	N/A	N/A	The TO only offers family takaful products.
5	HSBC Amanah Takaful (Malaysia) Berhad	Homeowner Takaful Scheme	Loss or damage to participant's home due to following perils: Fire, lightning, thunderbolt or subterranean fire. Hurricane, cyclone, typhoon, windstorm, earthquake, volcanic eruption or flood.	Depends on the full cost of rebuilding the participant's house.	The product also offers an additional protection that is subsidence and land slip. Subject to additional contribution.
		Household Contents Shield	Loss or damage to household contents, including: Electrical and electronic equipment, furniture and clothing. Valuables and personal effects like jewelry. Contents temporarily removed from the house. Domestic helper's belongings.	Replacement with the new ones.	
6	Hong Leong MSIG Takaful Berhad.	Fire Takaful Plan	NA	NA	Participant can extend the protection to cover loss or damage caused by the extraneous perils.



			participant or any member of his family normally residing with him.		Earthquake and volcanic eruption. Flood.
10	Takaful Ikhlas Berhad	<b>IKHLAS Comperhensi ve Private Car Takaful</b>	Loss or damage to participant's vehicle due to: Impact damage caused by falling objects provided <u>no flood, typhoon, hurricane, storm, tempest, volcanic eruption, earthquake, landslide, landslip, subsidence or sinking of the soil/earth or other convulsion of nature is involved.</u> Damage to property as a result of an accident arising out of the use of the participant's vehicle.	Not mentioned.	The product can be extended to protect the loss or damage due to: Strike, riot and civil commotion. Windscreen, window or sunroof damage. Damage arising from flood, typhoon, hurricane, storm, tempest, volcanic eruption, earthquake, landslide, landslip, subsidence or sinking of the soil/earth or other convulsion of nature is involved.
		<b>IKHLAS Fire Takaful</b>	Loss or damage to participant's property due to fire, lightning or explosion caused by gas used for domestic purposes.	Not mentioned.	The product can be extended to protect the loss or damage due to: Aircraft and other aerial devices or articles dropped therefrom. Earthquake and volcanic eruption. Hurricane, cyclone, typhoon and windstorm. Flood.
		<b>IKHLAS Houseowner/ Householder Takaful</b>	Loss or damage to participant's building or contents due to: Fire, lightning and explosion caused by gas used for domestic purposes. Aircraft, road vehicles or animals, bursting or overflowing of domestic water tanks, apparatus or pipes, theft by forcible and violent entry, windstorm, earthquake and flood	Not mentioned.	The product can be extended to protect the loss or damage due to: Subsidence, landslip, riot, strike and malicious damage, bush fire, damage by falling trees or branches and objects. Hurricane, cyclone, typhoon, windstorm to metal smoke stacks, awnings, blinds, signs and other outdoor fixtures and fittings including gates and fence.
11	Zurich Takaful Malaysia Berhad	<b>Fire Takaful</b>	Loss or damage to participant's property due to fire, lightning and explosion.	Not mentioned.	The product can be extended to protect the loss or damage caused by the extraneous perils: Riot, strike and malicious damage. Explosion. Impact damage. Storm, tempest. Flood.

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<p><b>Houseowner and Householder Takaful</b>  Loss or damage to the followings:  Buildings.  Contents.  property temporary removed, damage to mirrors by breakage, compensation for death of the participant and servant's property.  Loss of rent if dwelling is rendered uninhabitable.  Liability to the public as owner of the premises.</p>	<p>Loss of rent is up to 10% of the total sum covered while liability to public up to RM50,000.</p>	<p>The product protects the loss or damage due to:  Fire, lightning, thunderbolt, subterranean fire and explosion.  Hurricane, cyclone, typhoon, windstorm.  Earthquake and volcanic eruption.  Flood.  The product can be extended to protect the followings:  Windscreen damage.  Passenger's liability.  Damage arising from flood and landslide.  Damage arising from strike, riot and civil commotion.</p>
<p><b>Motor Takaful</b></p>	<p>Loss or damage to participant's vehicle due to accidental fire, theft or accident, bodily injury or death of a third party and damage of third party's property.</p>	<p>Not mentioned.</p>

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## Methodology

This research adopts quantitative methodology where data is collected via survey based on closed-ended questionnaires distributed among 147 flood victims in Kelantan and Pahang. Simple descriptive and cross-tabulation analyses are conducted to observe the impacts of flood towards the socio-economics livelihood of the victims and their preferences on the Takaful products. Detail analysis of the results is presented in next section.

## Data Analyses and Results

### *Background of Respondents*

Table 3: Background of Respondents

Demographic Information		Frequency	Percentage (%)
Gender	Male	63	42.9
	Female	84	57.1
	Total	147	100.0
Age	18-29	54	36.7
	30-39	25	17.0
	40-49	36	24.5
	50-59	29	19.7
	60-69	3	2.0
	Total	147	100.0

Marital Status	Single	56	38.1
	Married	81	55.1
	Divorced	4	2.7
	Widow	6	4.0
	Total	147	100.0
Area	Gua Musang	45	30.6
	Pasir Mas	44	29.9
	Rantau Panjang	40	27.2
	Kuantan	18	12.2
	Total	147	100.0
Level of Education	SPM	51	34.7
	STPM	33	22.4
	Diploma	13	8.8
	Degree	35	23.8
	Master Degree	15	10.2
	Total	147	100.0
Occupation	Student	44	29.9
	Retiree	6	4.1
	Private Employees	10	6.8
	Government Servant	54	36.7
	Self-employed	20	13.6
	Not working	13	8.8
	Total	147	100.0
Monthly Income	Less than RM1,000	61	41.5
	RM1,000 – RM2,000	26	17.7
	RM2,001 – RM3,000	8	5.4
	RM3,001 – RM4,000	9	6.1
	More than RM4000	42	29.2
	Total	147	100.0
Types of House	Village house	82	55.8
	Bungalow	37	25.2
	Terrace house	22	15.0
	Semi-detached house	6	4.1
	Total	147	100.0

The profile background of the flood victims that involved in this research is presented in Table 3 above. It is observe that the number of female and male respondents are quiet well distributed where there is only slight different in percentage of female (57 percent) compared to the male (43 percent). In terms of age group, slightly more than half of the respondents are below 40 years old (54 percent) and the rest (53 percent) are between 40 years old to 69 years old. In addition, more than half of the respondents are married (55 percent) and majority are from Kelantan provinces including Gua Musang, Pasir Mas, and Rantau Panjang (88 percent). In this context, it is believed that there should be no bias in terms of number of respondents for each states or provinces as all the respondents are flood victims. Meanwhile, based on the information, it is found that majority of the respondents have received education at the SPM level (35 percent) and there are STPM (22 percent), degree (24 percent), diploma (9 percent) holders and only 10 percent have achieved highest education of master level. In addition, more than one-third of them are government servant (37 percent) and the rests are students (30 percent), self-employed (14 percent), unemployment (9 percent), and retiree (4 percent). In terms of income, it is found that majority of the victims have income less than RM2,000 (59 percent) and there quiet number of them have income more than RM4,000 (29 percent). As most of the provinces are located in rural area, more than half of the victims stayed in village houses (56 percent) while the rest of them preferred to stayed at bungalows (25 percent), terrace houses (15 percent), and semi-detached houses (4 percent).

### ***Impact of Flood to the Respondents (victims)***

Table 4: The Impact of Flood on Financial Aspect

No	Financial Impact	Level of Agreement (%)					N	Mean	Standard Deviation
		1	2	3	4	5			
1	Flood causes significant losses in terms of my financial aspect.	6.8	10.2	12.9	48.3	21.8	147	3.68	
2	I use my savings in the bank to replace or repair any damaged of my property due to flood.	6.8	15.6	17.7	40.8	19.0	147	3.50	
3	My savings are not enough to replace or repair the property damage.	9.5	17.0	22.4	35.4	15.6	147	3.31	
4	Financial assistance from the government are not enough to cover the cost of the damage.	7.5	16.3	21.1	29.3	25.9	147	3.50	
5	I have to borrow money from others to repair or replace the damage.	20.4	27.2	23.8	21.1	7.5	147	2.68	

Note: 1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree

Table 4 indicates the impact of flood to the victims financially. There are five statements prepared in the survey to ask the victims on the impact of flood to their financial aspect. Based on descriptive analysis (mean value), it is observed that majority of the respondents reported that flood has caused significant losses to their financial sources (48 percent agree and 22 percent strongly agree) whereby they have to utilize their savings to repair any damages of their property (41 percent agree and 19 percent strongly agree) even though their savings is not enough to pay for all losses (35 percent agree and 16 percent strongly agree). In addition, the victims also convinced that the financial assistance that they received from government were not enough to cover the cost of damages (29 percent agree and 26 percent strongly agree). Hence, they are not keen to borrow money from others to repair or replace all the damages (27 percent disagree to statement 5: I have to borrow money from others to repair or replace the damage).

Table 5: The Impact of Flood on Lives and Health

No	Lives and Health	Level of Agreement (%)					N	Mean
		1	2	3	4	5		
1	Me and my family members' health were severely affected by the flood.	21.8	23.8	17.7	28.6	8.2	147	2.75
2	Me and my family members suffer after flood-diseases such as food poisoning, cholera, typhoid fever, leptospirosis and others.	34.7	27.2	14.3	15.0	8.8	147	2.36
3	There are members in my family who lost their lives due to flood.	58.5	19.0	8.8	10.9	2.7	147	1.80
4	Most of the flood victims die because of drowned.	44.2	20.4	15.6	10.2	9.5	147	2.20
5	Most of the flood victims die because of exposure to infectious diseases.	42.9	19.0	17.0	15.6	5.4	147	2.18

Note: 1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree

The impact of flood on lives and health is captured in Table 5 above. Based on five statements prepared in the survey, it is observed that most of the victims reported that flood does not affected much on their health condition (45 percent strongly disagree and disagree with

statement number one). The victims further informed that they and their family were not affected by any diseases such as food poisoning, cholera, typhoid fever, leptospirosis after the flood season. In addition, majority reported that the flood has not caused them to lose any of their families (44 percent strongly disagree with statement number four) and they believed that in case of death during the flood, it is not because of drowned or infectious diseases (more than half disagree and strongly disagree with statement number five).

Table 6: Impact of Flood on Job and Source of Income

No	Job and Source of Income	Level of Agreement (%)					N	Mean
		1	2	3	4	5		
1	It is difficult for me to go to work during the flood season.	4.1	16.3	6.8	39.5	33.3	147	3.82
2	The flood situation which is too dangerous have caused me to lose my permanent job.	34.0	17.0	25.9	19.0	4.1	147	2.41
3	Normally, I will do another job during the flood season as an additional source of income.	29.9	23.1	19.0	19.0	8.8	147	2.54
4	The income from the job is enough to support my family during the flood season.	28.6	23.1	23.1	19.0	6.1	147	2.51
5	The flood can reduce the crops and livestock.	4.8	15.6	8.8	28.6	42.2	147	3.86

Note: 1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree

The study further investigates the impact of flood on job and source of income of the flood victims. To achieve this objective, five related statements was asked to the victims. In this case, it is found that majority of the respondents stated that they faced difficulty to go to work during the flood season (73 percent agree and strongly agree). However, flood was not caused them to lose their job (half of the victims disagree and strongly disagree with statement number two) and there is no urgent need for them to do part time job in order to get additional source of income during the flood (53 percent disagree and strongly disagree with statement number three). Besides that, it was informed that their income is not enough to cover the expenses during the flood (29 percent strongly disagree and 23 percent disagree with statement number four). Finally, the victims believed that the flood can reduce the crops and livestock (more than 50 percent of the victims agree and strongly agree).

Table 7: Awareness on Takaful

No.	Awareness	Level of Agreement (%)					N	Mean
		1	2	3	4	5		
1	On the existence of Islamic insurance or called takaful.	4.1	11.6	17.0	40.1	27.2	147	3.75
2	Takaful is difference with conventional insurance.	4.1	5.4	29.9	37.4	23.1	147	3.70
3	There are companies that offer takaful products currently.	2.0	7.5	23.8	44.9	21.8	147	3.77
4	Various types of protection provided by the takaful operators.	2.0	8.8	27.9	41.5	19.7	147	3.68
5	There are takaful operators that offer protection for flood victims	5.4	15.6	31.3	32.0	15.6	147	3.38
6	The takaful coverage can reduce my financial loss when the flood hit.	5.4	11.6	32.7	37.4	12.9	147	3.42
7	Every member in my family should have their own takaful coverage.	4.8	6.1	30.6	40.1	18.4	147	3.61
8	The payment of takaful contribution is not expensive.	4.1	16.3	40.8	26.5	12.2	147	3.27
9	I am able to pay the takaful contribution every month.	7.5	8.8	43.5	27.2	12.9	147	3.29
Average Mean Value								

Note: 1=Really do not aware, 2=Not aware, 3=Uncertain, 4=Aware, 5=Really aware

Table 7 above presents results of descriptive analysis on the victims' awareness towards Takaful schemes. It is observed that majority of the flood victims are aware on the existing of Takaful as an Islamic insurance. The victims also aware that Takaful s difference from the conventional insurance and have offered various types of protection to the society offered by Takaful operators. In regards to the flood protection, most of them also aware that there are Takaful scheme that may reduce their financial losses because of flood even though only limited number of Takaful schemes offered flood coverage currently. In this context, it is also found that one-third (33 percent) of the victims are uncertain that there is Takaful scheme that may reduce their financial losses when the flood hit. Nevertheless, more than half (59 percent) of the victims believed that every member of their family should have their own Takaful coverage. However, they are uncertain on the amount of Takaful contribution that they have to pay for flood coverage (41 percent) and furthermore they are uncertain on their capability to pay the monthly Takaful contribution in future (44 percent).

## **Findings and Discussion**

This study investigated the impact of the flood that hit the east coast area in Malaysia to the victims in terms of financial aspect, life, health, job, or source of income. It is found that, due to the floods, the victims are mainly affected financially where they have to withdraw their savings to pay all flood expenses even though they have limited savings. Furthermore, the victims reported that the financial assistances by the government are not enough to cover for the expenses. The findings from descriptive analyses also indicate that the flood does not cause serious illnesses or death to them and their families including food poisoning, cholera, typhoid fever, leptospirosis and others. The floods have also affected the source of income of the flood victims given that they have to use their income to cover all expenses due to flood (allocation for new furniture, house repair, food, and necessities). The victims also reported that flood have affected the crops and livestock which in turn reduced their total income. This research further captured the victims' awareness towards Takaful products where majority of them are aware and know that Takaful is different from the conventional insurance. Unfortunately, they still inexact whether they can rely on Takaful to reduce the losses caused of flood and their ability to pay monthly Takaful contribution.

Accordingly, it is undeniable that there are financial assistance coming from the government, NGOs, and public as a whole to assist the victims. It is however, reported by the victims that these financial assistance still not enough to cover huge expenses due to flood. There was a proposal tabled by the government to consider the need for flood insurance policies to protect the welfare of the victims during natural disasters (Datuk Seri Ahmad Shabery Cheek, the Ministry of Communications and Multimedia, 2014). The idea triggered in order to propose that the government can work with insurance companies or Takaful operators to establish insurance policies that will benefit all parties, especially the flood victims. It is proposed to ensure effective national preparedness in the face of flooding, especially during the monsoon season in the east coast Malaysia. More important, the government expenses would be reduced when the flood victims become independent (have their own protection scheme). Still, this effort seems far to realize and the flood victims keep hoping that their burden can be mitigated one day.

It is undeniably accepted that the effect of flood to the victims can lead to a very negative effect in every aspects of their lives. Some may have lost their lives, lost their place to live, lost their income and even face the traumatic experience in their lives. The time to rebuild all the things that they have lost may take a very long time. Therefore there should be a way to reduce

or mitigate the risks faced by all of the flood victims especially in Malaysian context. One of the way is by introducing a special takaful protection available to them to cater the issues arise and provide protection to them from any possible risk and danger caused by the flood. Interestingly, majority of the victims villagers in this study are aware about the existing of Takaful scheme in the market which different from the conventional insurance. They also realised that Takaful scheme is important to prepare future financial protection. However, they are uncertain about the price (contribution) and payment method of the Takaful scheme.

Takaful comes from the Arabic root word ka-fa-la, which means to guarantee. Takaful is a practice whereby individuals in community jointly guarantee themselves against financial loss or damage. Takaful practices principles of brotherhood and mutual help for those who need it most in times of financial difficulties. Therefore the concept of takaful which is based on donation or tabarru' principle is the best way to become the shariah concept acceptable to be implemented to cater the situation faced by the flood victims. The traditional concept of takaful applicable could be as follows:

i. Tabarru': The amount of donation that the participants willingly relinquish in order to help each other in the event of misfortunes.

ii. Wakalah bi al-Ujrah: The contract of agency where:

- Participant authorizes the takaful operator to manage the fund on behalf of him/her.
- The takaful operator will invest the monies in accordance to wakalah bi al-istithmar principle.

The takaful operator is entitled to receive fees for services rendered as agreed at the beginning of the contract.

iii. Ju'alah: Literally, it means compensation for a given service. Legally, it is a contract for performing a given task against a prescribed fee in a given period. Ju'alah concept is used in a situation where underwriting surplus is shared among the participants and the takaful operator. Entitlement to underwriting surplus depends on a completion of work and delivery of result.

Other principle that seems able to fulfil the Maqasid Shariah and relevant to this current situation is Waqf. It is believed that Waqf principle having close and similar objective with the concept of Takaful which is basically donation or charitable in nature (Tabarru' principle). Waqf principle is believed to resolve the issue of ownership of Takaful fund whereby once the participant contribute into Waqf fund, it considered as a property of the society (ummah) as the main intention of the Waqf giver is for the sake of God blessing and to help the flood victims themselves.. In the context of Takaful, the participants will become Waqif (contributor) and the operator will become waqf fund manager.

However the challenge is not only the development of this innovative products or its application, the main concern would be the awareness of the people as to the importance of the Takaful concept, how to instil the knowledge that Takaful can be identified to help them in their current situation, and also how far they can contribute and cooperate to achieve this noble aim.

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