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Impacts of Disaster to SMEs in Malaysia

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Abstract

Small and medium sized enterprises (SMEs) play an important role in the economy of many countries, crucial in terms of social inclusion, local employment and innovation. In the developed world, such as the European Union, around 99 percent of economic activities can be traced back to SMEs, accounting for almost 66 percent of all jobs in the private sector. A similar scenario can be seen in the developing world where SMEs account for over 90 percent of all enterprises. In Malaysia, SMEs contributed 32 percent of the country's GDP, employed 59 percent of the nation's workforce and contributed to 19 percent of its exports in 2013. However, SMEs are also exposed to various risks such as natural disasters those may affect their business badly. Therefore, this study is evaluating the impacts of natural disaster to SMEs in Malaysia. A survey was conducted among SME in Malaysia in 2016 to identify the type of disaster occurred and their impacts. The survey was also used to identify the problems for the SMEs in mitigating natural disaster. The results of this study show the impacts of natural disaster are severe for SMEs in Malaysia and flood was identified as the main natural disaster among them. Based on the result, recommendations were proposed for the SMEs to overcome or at least to reduce the impacts of natural disaster to their business.

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1. Background to the study

In the last 15 years, world has seen a significance increase of number in natural disasters around the globe. Data by the Emergency Events Database (EM-DAT) shows that reported occurrence of disasters had increased by 63 percent while the number of reported death increased more than 85 percent.

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Within the similar period, economic damages caused by natural disasters were also increased more than 120 percent. The Table 1 shows the comparison of natural disasters' impacts since 1985.

Table 1: Impacts of natural disaster in Malaysia

Period	1985 - 1999	2000 - 2014	Percentage (%)
Occurrence	3 981	6 506	63.43 (increased)
Death	687 633	1 272 868	85.11 (increased)
Economic damages (\$'000)	800 368 660	1 777 383 206	122.07 (increased)

Source: [1]

In 2014, Asia experienced 46 percent of disasters caused by natural hazards globally. Since 1985 Asia has been the most vulnerable region in the world based on the number of disasters, number of deaths, number of people affected and economic damage, accounting for 50-70 percent of global natural disaster statistics [1].

These disasters in Asia affected not only individuals, but also businesses, from large multinationals to medium, small and micro enterprises. For example, as a result of the Thailand floods in 2011, at least 557,637 businesses in the flooded areas affected and 90 percent of them were small and medium enterprises (SMEs). In addition, about 2.3 million workers losing their jobs because of this disaster [2]. According to [3], economic losses were estimated at USD45.7 billion, most of it suffered by SMEs.

Like other developing countries, SMEs are the economic backbone of Thailand, accounting for 98 percent of total businesses in the country since 2012 [4]. The authors added that SMEs accounted for 37.0 percent of gross domestic product (GDP) and 80.4 percent of the workforce. Thai SMEs also contributed to 28.8 percent of total exports and 31.9 percent of total imports by value.

A similar situation can be seen in other Asian countries. In Malaysia, for example, SMEs contributing 32 percent of the country's gross domestic production (GDP), employing 59 percent of the nation's workforce and contributing 19 percent of the nation's exports in 2010 [5]. However, according to a press statement by the Ministry of International Trade and Industry (MITI) in 2015, more than 13,000 SMEs were affected by the unprecedented flooding which hit Kelantan state in December 2014 [6].

In the Philippines, SMEs also play an important element in economic development. However, there is no statistic shows the contribution of SMEs to the Philippines economy but [7] stated that based on the latest census by the government, SME in Philippines comprises 99.6 percent of the registered companies in this country. In addition, SME provides a living for 65 percent of the total workforce.

These countries (Thailand, Malaysia and Philippines) are example of emerging countries (based on the World Bank's country classification) that depends on SMEs in their economic development. At the same time, these countries are also exposed to varying natural hazards which also affected all business including SMEs. Therefore, the purpose of this paper is to identify the types of natural disasters those affected SMEs in Malaysia and then evaluate the impacts of the disaster and identify problems arose in mitigating natural disaster among SMEs. Finally, this paper will propose approaches can be used by SMEs in preventing or minimising the impact of natural disaster to their business.

2. Literature review

2.1. Disaster

Disasters are not caused by natural hazards alone but also the product of social, political and economic environment and all these factors must be considered in relation to each other [8,9,10]. A widely accepted definition of disaster is that of the International Strategy for Disaster Reduction (ISDR) in its 2004's annual report, where "disaster" is defined as:

“a serious disruption of the functioning of a community or a society causing widespread human, material, economic or environmental losses which exceed the ability of the affected community or society to cope using its own resources.”

[11] defined a disaster as an unusual natural or man-made event, including an event caused by failure of technological systems, which temporarily crushes the response capacity of human communities, groups of individuals or natural environment and which causes massive damage, economic loss, disruption, injury, and/or loss of life. [12] suggested that a disaster is a social event, where the tendency for damage is dependent upon the interplay between humans and their use of the physical and social world while [13] argued that a disaster consists of the occurrence of a hazard or event that may cause harm, and the inability of a society to manage the consequences of the event.

These definitions contained several features of disasters. They are events of great magnitude which cause loss and disruption. They usually occur suddenly and their impact is experienced over a long period. The definitions also make the point that overcoming the impact of disasters takes a lot of effort and sometimes even requires help from others. Another feature of disasters is it can be natural disaster such as earthquakes, floods and storms or it can be man-made disasters such as fires, wars and terrorisms.

[14] discovers several concepts closely related to disasters. A disaster is a phenomenon which occurs at a certain place. The probability of occurrence of a potentially damaging phenomenon within a certain time frame is referred to as a hazard. It is a situation which has the possibility of causing an event which can have negative consequences. Vulnerability, on the other hand, refers to how susceptible a place is. It is the extent to which a community's structure, services or environment are likely to be damaged or disrupted by the impact of a hazard. Risk refers to the probability that loss will occur as the result of an adverse phenomenon happening or the expected losses (of lives, persons injured, property damaged, and economic activities disrupted) due to it.

Disasters also have negative impacts to life and economic losses. In 2012, 124.5 million people were exposed to natural disasters and from this figure, 9655 people were killed and 68.2% of the recorded disaster mortality is accounted from lower-middle income countries [15]. According to a statistic by [15], earthquake, storms and floods account for 80 per cent of loss of life and 90 per cent of economic losses linked to natural hazards in Asian countries in the last three decades. Epidemics and famine, the next most significant cause of loss of life in these continents, are strongly linked to meteorological and hydrological conditions. The ongoing climate change process will result in increased intensity, frequency and variability in the patterns of those hazards.

2.2 Small and medium sized enterprises (SME)

According to [16], the Bolton Committee 1971 was the first organisation to provide a solid definition of SME. The Committee defined SME as “a firm is regarded as small if it meets the following three criteria, such as, it has relatively small share of the market place, it is managed by owners in a personalized way management structure, it doesn't form part of a large enterprise.”

However, nowadays, different definition can be seen in developed, developing and least developed countries, based on the number of employee and annual turnover. For example, as stated by [17]), the European Commission and the Organization for Economic Cooperation and Development (whose membership includes European and Asian countries like Japan) define SMEs as having below 500 employees. However, in Malaysia, SME definition is separated for manufacturers and service providers. According to the SME Corp Malaysia, for manufacturers, number of full time employees must not exceeding 200 while for service providers, maximum number of full time staffs is 75.

In term of annual turnover, again, the acceptable definition and indicators are differ from country to country, based on its level of economic. In developed countries, for example, in the USA, the definition of a medium business is “an entity with average annual gross revenues for the preceding three years not to exceed \$7 million, and very small business as an entity with average annual gross revenues for the preceding three years not to exceed \$250,000”[17]. In Ethiopia, small enterprises defined in their paid up capital which is more than Birr 20,000 (\$2,500) but not more than Birr 500,000 (\$62,500) [18].

Therefore, there is no single definition of SME can be obtained. Every country has their own definition and there are also definition provided by various international institutions. Each definition uses different criteria and each criteria use different indicator. However, since this study will emphasis on SMEs in Malaysia, this study will use definition that was endorsed by the Malaysian SME Corporation in 2013, which simplified as follows;

- Manufacturing: Sales turnover not exceeding RM50 million OR full-time employees not exceeding 200 workers
- Services and other sectors: Sales turnover not exceeding RM20 million OR full-time employees not exceeding 75 workers

A business will be deemed as an SME if it meets either one of the two specified qualifying criteria, namely sales turnover or full-time employees, whichever is lower.

2.3 SME and disaster

In Asia, a majority of urban areas are located along the coastal areas and deltas which in exposed to higher risks of climate changed and natural disasters such as floods and landslides. Many SMEs prefer to operate in urban areas because of logistics and infrastructure supports, presence of banking and financial institutions, strategic business conditions and high growth of urban market [19]. Business operations in these areas will provide higher vulnerability for SMEs towards natural disaster.

Furthermore, size and financial limitations are other factors that contribute to increased vulnerability to disasters among SMEs. [20], for example, suggested that SMEs are exposed to both natural and man-made disasters, mainly because of the lack of financial expertise, but also geographical location. [21] in 2012 found that Asian-Pacific countries experience at least 14 disasters a year, including earthquakes, floods, hurricanes, pandemics, terrorism and nuclear accidents. This is not a good indicator for SMEs because according to [21], SMEs are the engines of growth and innovation in the Asian Pacific region. SMEs account for over 97 per cent of all enterprises and employ over half of the workforce across the Asian Pacific economies. SMEs contribute significantly to economic growth, with their share of GDP ranging from 20 per cent to 50 per cent in the majority of the Asian Pacific economies.

The impact of disasters on SMEs is high all over the world. For example, in the Bangkok flood of 2011, at least 550,000 SMEs were disrupted and more than 2 million jobs affected. The flood also reduced Thailand's national GDP by 37 percent [22]. Similarly the great flood in Kelantan state in December 2014, affected 13,337 SMEs, some 37.7 percent of all SMEs in the state. Therefore, one important lesson to be learned from past disasters such as the Thailand and Kelantan floods is the need to provide appropriate protection to SMEs because SMEs are not usually well prepared for dealing with disaster. In Thailand, for example, only 14 percent of the SMEs affected by the Bangkok floods of 2011 were covered by flood insurance [2]. According to [23], affordability or financial limitation is a significant factor why SMEs in developing countries are not protected by disaster insurance.

Another lesson that can be learnt from these catastrophes is the lack of business resilience among SMEs. As a consequence, many SMEs were not able to survive after being hit by disasters, in Thailand, Japan, Malaysia and other countries. In particular, before the disasters hit these countries, there had been no action by government or other stakeholders in helping SMEs to address these issues, especially in developing countries such as Thailand and Malaysia.

In conclusion, SMEs are very important in motivating economic activities within a country, so ensuring their survival during and after disasters is essential. Government should learn from previous disasters, such as the Japan tsunami and the Bangkok flood of 2011, about how these disasters can affect SMEs and therefore GDP.

3. Research methodology

For the purpose of this research, a questionnaires survey was conducted among SMEs in Malaysia. 1200 surveys were distributed online using the database of the Malaysia SMECorp. The purposes of this survey were to identify the natural disaster those affected them most and evaluate the impacts of natural disaster to them. In addition, the survey also was used to identify problems and limitation facing by the SMEs in Malaysia in mitigating the disaster.

The data from the survey were analysed by descriptive statistical analyses in order to determine which natural disaster affected more to the respondents based on the mean of each disaster indicated by the respondents. For the

survey, 44.1 percent of the respondents had experience of being hit by natural disasters in the last five (5) years they were asked to state the type of natural disaster. For this purpose, six (6) natural disasters were proposed to the respondents and these six natural disasters were the most affected in Malaysia based on the various related reports. In addition, the respondents also were given an option to state other natural disasters if their business were hit by other natural disaster.

4. Analysis, finding and discussion

The result of the descriptive statistics analysis shows that flood is the most affected natural disasters compared to others. This result is predictable and tally with previous studies which stated that floods is the main natural disasters in Malaysia. Figure 1 show the percentage of each natural disaster that was hit the SMEs in Malaysia in the last 5 years, which can be described as 34 percent of the respondent has been hit by flood in the last 5 years. Meanwhile, there were 5 percent of the SMEs choose “other” disaster and they stated as political risks, drop of commodities prices and fluctuation of oil price. However, these risks cannot be considered in this research because they are not natural disaster.

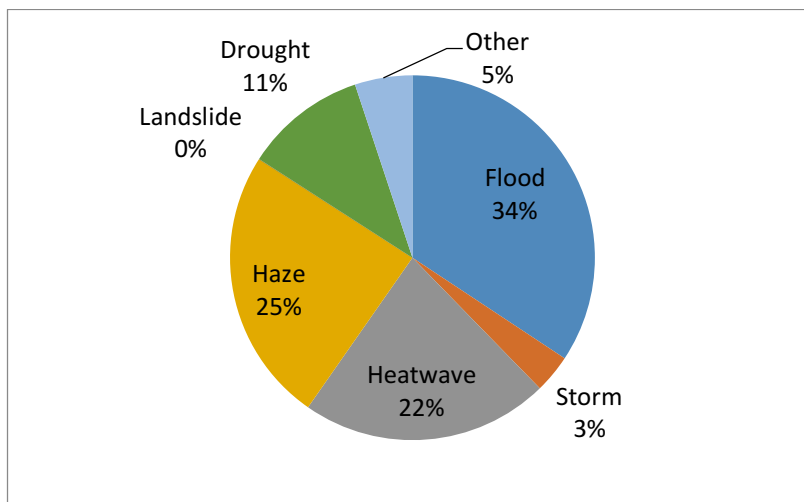


Figure 1: Natural disaster experience among SMEs in Malaysia (%)

The questionnaire also asked the respondents the impacts of natural disasters to their business. 17 positive and negative impacts were proposed as options for them to choose and the result shows that the loss of sales, non-attendance of employees and damage to property are the top three impacts identified among respondents. The details of the impacts to the SMEs surveyed are shown in the Figure 2. The Figure 2 also suggested positive impacts of natural disasters are very small or almost not exist among the respondents.

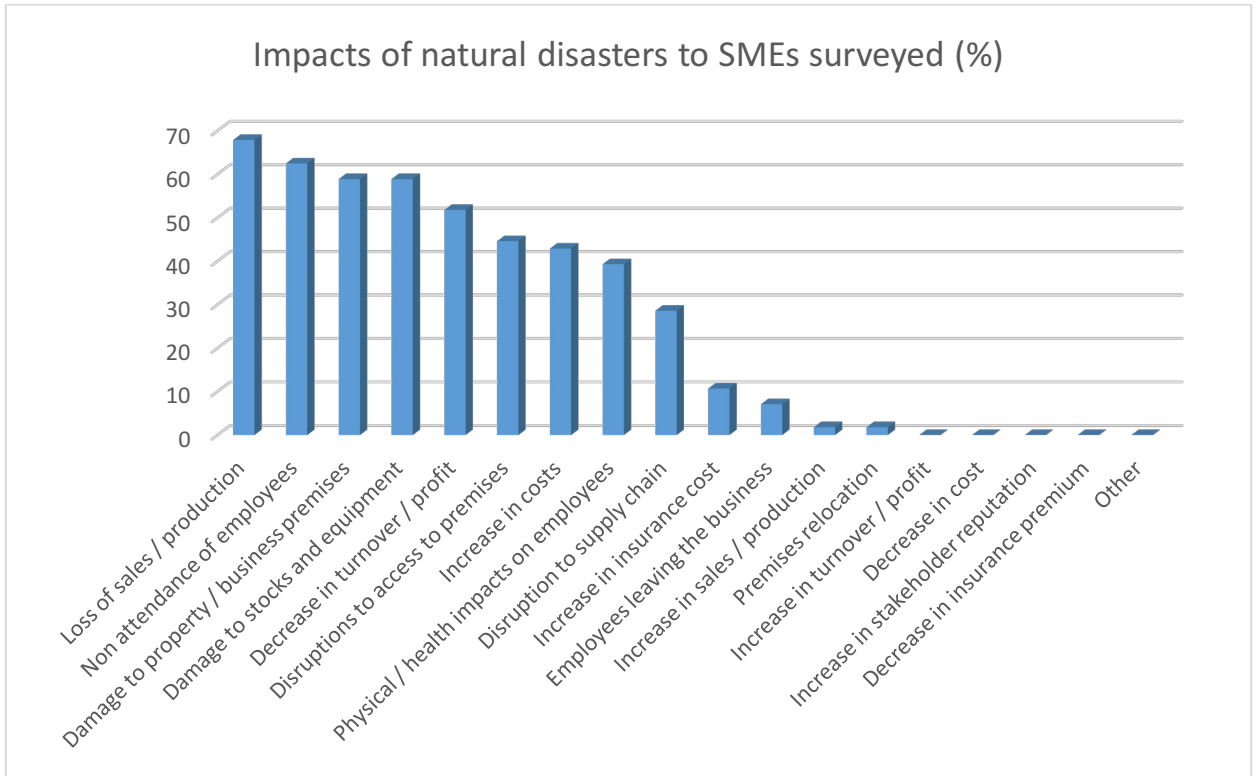


Figure 2: Impacts of natural disasters to SMEs surveyed

The respondents also were asked about their business’s experience of natural disasters. The respondents were required to rate statements concerning impact of natural disasters, their awareness and warning received prior to the natural disasters based on the Likert Scale of strongly agree; agree; don’t know; disagree; and strongly disagree. The mean score for each statement is demonstrated in Table 2 below;

Table 2: Mean score for the respondents’ business experience of natural disaster.

Statement	% of responses with lowest weight	% of responses with highest weight	Mean weight
The impact of the natural disaster was very bad to my business	24	-	4.06
My business was aware of a natural disaster occurring in the locality	8.5	-	3.75
Adequate information / warning was received prior to the occurrence of the natural disaster	1.7	-	3.19
Sufficient lead time was available to take action upon receiving information / warning	-	3.4	2.89

Based on the Table 2, many respondents claimed that the impact of the natural disaster was very bad for their business. Mean score 4.06 shows that majority of the affected respondents agree with the statement. In addition, 14 of the affected respondents strongly agree with the statement. The mean score for the second statement also quite significant to conclude that the respondents aware about the natural disaster occurring around them. However, for the third and fourth statements, drastic drop in term of the number of responses those strongly agree with the statement. The final statement about sufficient lead time received is the only statement where there were respondents

strongly disagrees. The *mean score* for the statement also less than 3 which indicates that many of the affected respondents were not sure or disagreed that they were given sufficient time to take any necessary action after receiving information or warning about natural disasters those might affect them.

Based on the survey, flood is the most affected natural disaster for SMEs in Malaysia. This finding can be expected because flood is main natural in Malaysia and tally with previous literatures and publications from various local and international agencies. Many SMEs indicated that they were hit by flood at least once a year and some of them suffered twice or more per year in the last six years. However, the survey also indicated growth of unexpected natural disaster such as haze and heat wave. These natural disasters were not new in Malaysia but previously their impacts and occurrence were not discussed widely and not considered as main threat to SMEs in Malaysia. Many SMEs in Malaysia agreed that their business were affected by haze and heat wave but not many of them indicted the high impacts of these disasters to their business.

Impacts of natural disaster are severe for SMEs in Malaysia. Many SMEs agreed that they were affected by operational risks such as loss of sales and production, non-attendance of employee, damage to stocks and equipment and damage to property and business premises. As the result, they cannot run their business and this scenario lead to the bigger impacts such as loss of sales and revenue. As stated previously, SME in developing countries such as Malaysia run their business with limited capital and financial resources, and any unexpected events might contribute huge financial implication to them. None of the surveyed respondents agreed that naturals disaster might provide positive impacts to their business and this finding is commensurate with finding from other studies described in the Section 2 of this paper.

In addition, many of the SMEs aware that their business is expose to various natural disasters because of their location and other factors. As stated in the literature, urban areas which are located along the coastal areas and deltas are preferable areas for these SMEs to operate because of logistics and infrastructure supports. However, these areas exposed to various natural disasters and many of them are unwilling to spend money for disaster risk reduction programs. Again, financial limitation and lack of expertise are the main reason for this. This finding is similar with other studies which were discussed in previous literature.

Many of these SMEs also stated that lack of information or warning was received prior to the occurrence of the natural disaster. This shows the weakness of information delivery procedures before and during disasters. Even there is no specific reason was asked for this pattern, the role of mass media is believed an essential cause for this as highlighted by [24,25].

Finally, the respondents of this study were asked about lead time received to take actions upon receiving information or warning of a natural disaster. Majority of the respondents indicate the lead time given is insufficient for them. Once again, this situation shows the weakness of authority bodies in the affected area and in Malaysia generally in delivering important information.

5. Conclusion and recommendation

As a conclusion, SME plays significance role in the economy of many countries, crucial in terms of social inclusion, local employment and innovation. However, the SMEs are also exposed to various risks including natural disaster. The survey conducted for this study indicated that the impacts of natural disaster to SMEs in Malaysia are severe. Furthermore, many of the affected SMEs failed to cope and manage the risks of natural disaster because of their limited financial capability and expertise. Furthermore, weakness in delivering information of natural disasters is another issue that might increase the severity to the SMEs. In order to deal with this problem, numerous studies [26,27,20,28,29,30] agree that Business Continuity Management (BCM) is one of the approach can be used by SME. The BCM was introduced more than 30 years ago but its implementation among SME in developing countries is hard to be seen. In the last 30 years, BCM was used only by multinational and large companies to deal with information technology (IT) and computer problems. However, nowadays, many SME in developed countries are started to use it as disaster management approach. In addition, the government of developed countries also are started to provide BCM guidelines for SME in their countries. However, this paper will not discuss further on the roles of BCM as disaster management approach for SMEs and it will be investigated in other studies.

Meanwhile, the government or any authorized body should play more effective roles in dealing with natural disasters especially in term of delivering information, so that all the affected SMEs can take necessary actions prior to the natural disaster which might minimize their loss.

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