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A Review of the Preparedness in the Management of Disaster in Malaysia

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Abstract
Preparedness during a disaster needs serious attention as it is a critical aspect that will support a country when it is struck by natural or man-made disasters and epidemics. By learning from other countries’ experience in handling disasters, the health system's ability to respond effectively on these various threats becomes a top priority. However, the level of preparedness to confront and manage disasters among health workers in many developing countries such as Malaysia, comprising various levels of situations, is still questionable. There is a need for these countries that seldom or have never experienced a major disaster incident to improve on their system’s efficiency. The information gathered in this study will be used for future improvement and planning of the health systems specifically in Malaysia and in general for other developing countries as well. As the existing system is not fully developed, a lot of improvements are required. Additionally, health workers also need to play their roles and functions during the simulation exercises to ensure that they are adequately prepared when a disaster occurs.

Keywords: Disasters, Preparedness, Health Workers, Malaysia.

Introduction
The unpredictable global climate is listed as a major factor of today’s occurrences of disaster. Natural disasters (such as flood, landslides, tsunamis, earthquakes, storms, tornadoes etc.) or man-made disasters and epidemics have become more frequent (Subbarao et, 2008). The natural disasters can occur in any part of the world ranging from poor, developing countries to developed countries (Andrew, 2009; Chaffee, 2009). However, countries that are often affected by this disaster appear to be more alert and sensitive in disaster preparedness (Anda, Pranee & Wipa, 2012). On the other hand, countries that are seldom affected by disasters often underestimate the preparation to handle such an unpredictable situation. Eventually the destruction and losses that a country has to face could be huge in amount. Furthermore, the recovery process also involves a very large financial sum to cover the total damage and losses (mStar, 31 Disember, 2014) while the country itself is in a helpless situation and being vulnerable to various threats.
The massive catastrophic floods that struck Peninsular Malaysia at the end of 2014 and early 2015 were mainly caused by the heavy rains. Eight Malaysian states which are Kelantan, Terengganu, Pahang, Perak, Perlis, Selangor, Johor and Negeri Sembilan were struck by severe floods. During the incident, all road access to the disaster area was also particularly affected especially in Kelantan. Most rivers in Kelantan, Pahang, Perak and Terengganu also recorded high levels of water level measurement (mStar, December 29, 2014).

Based on reports from foreign news agencies, the number of victims being evacuated in the country reached more than 200,000 people on December 28, 2014, with reports of several deaths (Reuters, December 23, 2014; mStar, December 29, 2014). This flood has been regarded as the worst flood in Malaysia in recent decades (Sumisha, December 23, 2014). However, the actual numbers of evacuees, missing persons and deaths were unknown as the Malaysian flood centres could not provide accurate figures (The Malay Mail, 29 December 2014; mStar, December 29, 2014).

Additionally, the flood situation did not only involve the local communities but also foreign tourists, public facilities and business activities. Most of the stranded foreign tourists were those who had stayed in a resort in Taman Negara in Pahang. The tourists involved were from Canada, Britain, Australia and Romania (Reuters, December 23, 2014). All of them were later rescued by bots and helicopters.

During the flood, 102 health facilities were affected in the eight states. 38 health facilities were partially functioning while the rest of health facilities were completely damaged (The Malay Mail, December 29, 20).

According to a local newspaper report, an anaesthetic expert working at the Kuala Krai Hospital in Kelantan had to provide medication to a baby in the dark after a diesel generator ran out of fuel. The only initiative the hospital staff had at that moment was by using the helicopters to transfer patients from the Kuala Krai Hospital when the flood situation became worse. The hospital also needed to keep functioning as a temporary relief centre for flood victims. The nearest hospital, Universiti Sains Malaysia Hospital (HUSM) in Kubang Kerian Kelantan, had a shortage of blood supply due to the high number of life-saving operations. Medical students had been deployed to assist medical officers working in HUSM (Channel News Asia, December 23, 2014; The Malay Mail, December 29, 2014; Reuters, December 23, 2014)

Problem Statement

As what we have seen from the 2014 floods, it is difficult to prepare for an emergency or disaster situation. This is because there will be two types of emergency situation which will occur at the same time. Anxiety and panic conditions among members of the local communities including the health personnel are expected. This is because they are in a dilemma between the safety of their family or the safety of the community members. Therefore, the assistance of healthcare personnel members from outside the disaster area is urgently needed.
The Crisis Preparedness Response centre (CPRC) in Kelantan was also affected. The centre had moved its location twice to make sure it could function perfectly. During the transfer process, the CPRC staff had to bring all the required equipment and documents. Unfortunately, the majority of the staff involved were also staying in the affected areas. While safeguarding the medicines, medical equipment and documents, their own homes and their families were at risk. They were forced to work with no electricity, no clean water, unhygienic food and unstable emotions during that incident.

As such, the researcher had taken the initiative to focus this study only on the preparation of the staff in hospitals in states which lacked or did not face major disasters, to be deployed during the disaster. As seen in Malaysia’s experience, 64 health facilities in eight states were not functioning at all during the 2014 flood. Assistance from health personnel outside the disaster sites, especially those not from disaster areas, was vital.

Based on what had happened and reported in the press, we can link this matter to the 12th item from the book “2014 Flood Disaster Dialogue” published by the Ministry of Malaysia Education and the National Professor’s Council on May 28th, 2015 (page 13), which stated that: "Rescue issues, delivering food and medicines, and managing the transfer area are the cornerstones of management to strengthen preparedness and responsiveness when dealing with disasters."

This is also related to the 11 item in the same book (page 13), which stated: "The major issue in managing disaster risk reduction is the 'access to information' that is accurate, complete and speedy when dealing with flood disasters."

The combination of the above events inform us of the need to collect disaster-related information, not just when or after it occurs. In fact, preliminary information that can help in making quick and accurate decisions to deal with the catastrophe is also very important. In addition, accurate information can reduce the negative impact of catastrophic impacts at a minimum. The flood disaster in Malaysia had been critically affected by the operation of the health facilities. Therefore, it is logical that this study is conducted to measure the level of disaster preparedness among health personnel members at various stages, especially in places which do not face any catastrophic events. This information is useful for the purpose of planning and improving the country’s health system in the future. This is because the presence of health workers from unaffected states can assist the staff in the affected states who need to secure the safety and health of their respective families.

The newspaper reports quoted above clearly show the degree of preparedness of agencies involved which was at the weak level. It is clear that there is a need to upgrade the management and preparedness which depends on the information collected before the disaster, especially in hospitals and health facilities in the country.

Some of the issues raised frequently focus on whether the health personnel are always prepared to be assigned in the disaster area when directed and whether there is a level of readiness among the various levels of health staff in the country. Other issues such as whether the health
personnel could accept or reject disaster-directed work instructions should also be considered as part of the required information.

Review on the analysis of the disaster (Floods): The Malaysian case study

The definition of ‘disaster’

The term ‘disaster’ is defined from the occurrence or incident that involves a magnitude bigger than an emergency; affecting basic services such as housing, transportation, communication, water supply, and healthcare; and one that requires community response outside the affected area. A disaster is an unexpected, serious, and immediate threat to the public safety and health.

In Malaysia, floods are the most frequent catastrophic occurrences from the 1880s to the present. In line with Balek’s statement (1983), floods are natural disasters caused by climate factors such as rain, temperature, evaporation, wind and the movement of the earth. In fact, a flood is a natural disaster that represents 40 percent to 50 percent of all types of disasters which cause deaths globally (Diaz, 2004; FitzGerald, Du, Jamal, Clark, & Hou, 2010).

Malaysia has classified the management of the disaster into three main stages, pre-disaster, current and post-disaster to ensure more holistic management. However, studies focusing on events during and after the disasters had seen a marked decrease especially studies involving humanitarian aid in the past few decades (McEntire, 1999; Altay, 2008). Therefore, it is necessary to study and evaluate the success and failure of recent disaster management and flood relief operations. In the case of the flood, the results obtained by previous researchers had started to show the negative view of Malaysia’s flood evacuation policy; as stated by some researchers, the implementation of the disaster operation in Malaysia was reactive as the government only took action after the floods occurred and did not consider it as part of a future preparation (Chan & Parker, 1996; Chan, 2012). Although Malaysia has implemented various policies at all levels, these require improvement especially for current and post-disaster periods, in terms of the implementation of relief projects and rehabilitation for victims (Chan, 2012; Said, Abdul Gapor, Samian, & Abd Aziz, 2013; Zaiton, Mohd Bahrin, & Zaharah, 2013). All these actions can bring a difference to the victim and the quality of life. It is therefore recommended that an assessment of existing policies should be implemented (Roosli, 2010).

The flood victims are the main group of people that have to face the loss and it is understandable that they hope to get aid from public and private sources. This is especially true for victims in developing countries such as Malaysia, where disasters create demands that sometimes cannot be fulfilled by domestic sources. In this country, disaster impacts are generally influenced by the efficacy of relief operations and emergencies.

The Management of Disaster in Malaysia

In the context of disaster management, there is no specific concern on only one type of disaster. This is because every policy issued is applicable to all types of disasters, including floods. On May 11, 1997, MSN Directive No. 20 which consists of the policies and mechanisms for National
Disaster Management and Assistance was drafted. This guide outlines the policy on disaster management and sets the roles and responsibilities of the agencies involved in the time it takes to deal with the disaster. In addition, instructions issued also cover actions to monitor the activities of all agencies involved in disaster management (MKN, 2012). In 2012, the National Security Council (MKN) updated its Directive No. 20 so that it could be tailored to fit current changes, as well as the frequent calamities of the disaster.

The management of disaster in Malaysia has been set up and placed under the Disaster Management and Assistance Committee, located in the central, state and district levels to manage disasters in their respective areas in order to ensure its effectiveness. At the same time, the National Security Council (MKN) still leads the disaster management agency and MKN has the responsibility to coordinate, establish and ensure that disaster management policies and mechanisms are followed and implemented at all levels based on Directive No.20. Disaster management committees are organised according to three levels, namely the central committees, state-level committees and district committees.

**Flood prediction and Warning System (Pre-Disaster)**

The Pre-Management phase based on impending floods in Malaysia record uses the Standard Operating Procedures (SOPs) set by MSN for agencies such as the Department of Irrigation and Drainage (JPS), Public Works Department (JKR), Meteorological Department and Local Authority (PBT) involving structured or unstructured measures. Structured measures adopted in Malaysia include dams and fortifications to control the floods while unstructured measures include land use planning, flood predictions and warning systems to decrease the impact of floods (Chan, 2012; Khalid, & Shafiai, 2015). The structured measures implemented are to reduce the danger of floods so as not to cause greater harm to the communities in the flood plains. The agencies involved in the implementation of these measures are the Department of Irrigation and Drainage (DID), Local Authorities (PBTs) and Public Works Department (JKR) (Hussaini, 2007).

In addition, the agencies involved in the unstructured disaster management are the Malaysian Meteorological Department (JMM) and the Public Works Department (MKN, 2011). The record shows that the first flood warning service was made available when the disaster struck in 1925 along Sungai Kinta in Perak, Sungai Klang, Sungai Selangor and Perak. In fact, flood warning systems have been used to monitor river water levels in the Kelantan River, Kuala Krai area. It has also been used to warn Kota Bharu downstream residents since the early 1900s. The police are also given the authority to check rainwater levels and convey the information through the VHF set for the attention of the Flood Relief Committee in Kota Bharu (Department of Irrigation and Drainage, 2013).

A flood warning system in main rivers that had suffered major floods had been revised after 1971. Since 2009, JPS has positioned 335 rain gauges and 208 telemetric equipment at a telemetric water level station built around 40 river basins to obtain real-time data to monitor floods. In addition, manual observation centres at 400 streams and more than 250 stationed stations have been established (Department of Irrigation and Drainage, 2013). Real-time rain and water level information
have also been released online via the Flood-Info website and can be accessed directly by government officials and the public. In addition, a short messaging system (SMS) is also available to alert staff of relevant government agencies such as the Police, the Army, the Malaysian Meteorological Department (JMM), the Department of Civil Defence, the National Security Council (BKN) in the Prime Minister's Department and other agencies involved (Department of Irrigation and Drainage, 2013). The Meteorological Department also provides weather forecasts to facilitate public access to current weather conditions.

In 2001, Malaysia introduced the 'Environmentally Friendly Drainage Manual (MSMA) to be used as a tool in integrated flood management (Chan, 2012; Musa, Chan, Ku Mahamud, Karim, & Zaini, 2013). As for the structural method, one example is the effective flood prediction system and the warning system (Department of Irrigation and Drainage, 2013). The methods used for flood management described above show that Malaysia has started an initiative to mitigate the impact of flood on human health in high risk areas.

Flood Relief Machinery (Current and Post-Disaster)
The management of flood victims during and after the flood situation in Malaysia is also based on Directive No. 20. According to MKN (2012), the current disaster management involves several rescue agencies at the scene, such as the Malaysian Special Forces and Rescue (SMART), Royal Malaysian Police (PDRM), Fire and Rescue Department Malaysia (BOMBA), Malaysian Armed Forces (ATM) and the Department of Civil Defence (JPAM). Furthermore, the management of the flood victims after the disaster is under the responsibility of the Department of Social Welfare (JKM), the Department of Malaysian Volunteers (RELA), the Malaysian Red Crescent Society (BSMM) and the Ministry of Health Malaysia (KKM). After the victim is transferred, a few other agencies provide the material and spiritual assistance. One of these agencies is the Social Welfare Department (JKM) which is assisted and supported by agencies such as JPAM, RELA and MRC; their roles are based on Directive No.20, which is to provide and organize disaster relief centres (MKN, 2012).

After the disaster, some short-term and long-term recovery measures will be continued by the JKM to help the victims continue their livelihoods. All the assistance and support from these departments is a short-term solution such as getting food and drink supplies in the beginning period. As for long-term assistance, this may come in the form of "Wang Ehsan" or financial aid and "Recovery Assistance" (given by JKM) based on the approval of the National Disaster Committee (JPBP) and State Disaster Management Committee (PBT). "Recovery Assistance" is provided to disaster victims who did not receive the help of Wang Ehsan (JKM, 2013/2014).

However, in order to provide relocation after the disaster, the government did not state in Directive No.20 regarding the types of homes to be acquired by the victims. This is because the construction or housing assistance after the disaster must be discussed with the higher authorities for further action. Directive No.20 will only assist the relevant parties to address issues related to current and post-disaster management which are often a problem in disaster management in Malaysia.
Conclusion
In Malaysia, the flood disaster has become a huge threat in some areas that have been identified as high risk areas. It also has a profound impact on flood victims in the affected areas. Disaster management in Malaysia based on Directive No. 20 is seen as a preparation to cope with the disaster before, during and after the disaster. Based on the directive, it is clear that it is useful for outlining and listing the tasks and responsibilities that must be undertaken by the parties at every level involving either the government or the private sector. However, based on previous studies that have been described, some findings suggest that there are problems and issues that arise for the current and post-disaster stages involving flood victims in Malaysia (Chan, 2012; Roosli & O, Brien, 2011). In Malaysia, studies on the effectiveness of policy implementation at the current and post-disaster level affecting flood victims should be enhanced and improved especially those focusing on health workers themselves. As such, this present study aims to fulfil the gaps and voids left out by previous studies.

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