

Paper 23



KNOWLEDGE AND AWARENESS ON LANDSLIDES AMONG TEACHERS IN NORTHERN AREA MALAYSIA

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Abstract

Cases of landslides in Malaysia did not only destroy properties but have also taken the lives of people. The society need to be educated about the danger of landslides, so that, they can be better prepared to face the disaster that can happen at any time. One of the main groups that need to be educated on the danger of landslides are teachers. Teachers teach students the importance of maintaining and conserving the environment, as well as the basics about landslides including early signs of landslides and causes of landslides. In order to disseminate knowledge about landslides accurately to students, teachers themselves need to first, be knowledgeable on the subject matter. This research has two objectives, first, to identify the level of knowledge and awareness regarding landslides among teachers; second, to investigate the differences in knowledge and awareness regarding landslides between teachers who teach in landslide prone areas with teachers who teach in non-landslide prone areas. This research used qualitative method through in-depth interview to gather information from 10 teacher respondents who are teaching in the Northern region of Malaysia. The findings show that the level of landslides knowledge and awareness among teachers is high. The findings also indicate that there is no difference in term of landslides knowledge and awareness between teachers who teach in areas prone to landslides and those who teach in areas that are not prone to landslides.

Keywords

Landslides, teachers, knowledge, awareness, environmental education, Malaysia

1.0 Introduction

In Malaysia, every year, especially during the monsoon season, the occurrence of landslides is usual. The annual monsoon in Malaysia is from the southwest and northeast and it usually takes place from April to October and from October to February. The average annual rainfall in Malaysia is around 2000 to 2500mm. Landslides are considered as one of the most critical natural disasters in Malaysia (Ng, 2012; Gue and Tan, 2006).

According to Che Hassandi (2013), landslides occur during or immediately after rain. Landslides usually occur in rural areas. Even though rainfall does not directly cause landslides, it triggers the slopes, making them unsafe or dangerous. Major landslides are easier to predict compared to minor landslides because of the warning signs such as widening cracks on structures in or outside of the building or concentrated amounts of water overflowing onto the slopes. If a car passes by the landslides area, it could be buried or pushed over a cliff. The Public Works Department (2013) reported that, there are 21,000 landslide-prone areas throughout the country, out of which 16,000 or 76% are in peninsular Malaysia, and another 3,000 are in Sabah and 2,000 in Sarawak.

According to Habibah and Jamilah (2011), landslides are localized events, unlike earthquakes and floods. In the past, landslides have occurred in different places in Malaysia, including in Paya Terubong, Penang, Highland Towers, Kuala Lumpur, and Pos Dipang, Perak. These incidents caused considerable losses in term of both monetary and lives. Earlier landslides studies

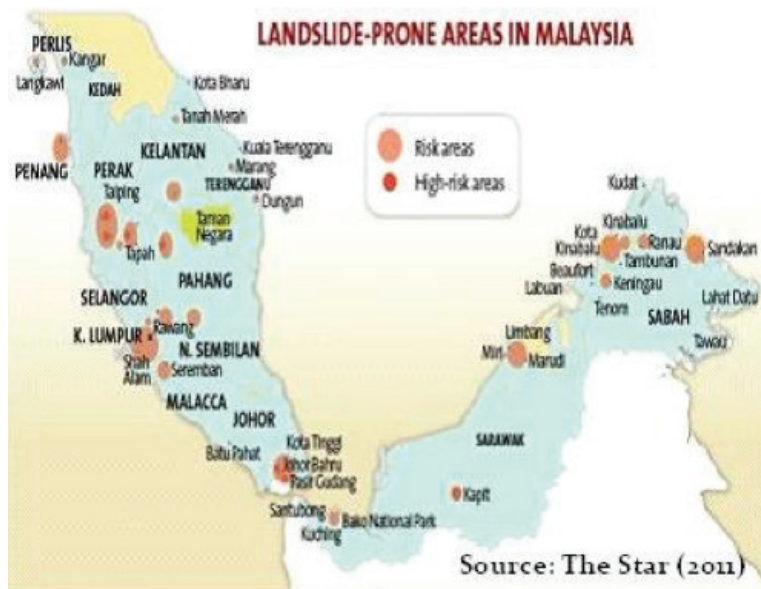


Fig. 1 Landslides Prone Areas in Malaysia

revealed that, one of the main causes of landslide is the lack of awareness and knowledge pertaining to the hill destruction. This is evidenced in the way how hills are being exploited by human being without taking consideration of the safety and destruction of flora and fauna (Habibah and Vijaya, 2012).

According to Jamilah et al. (2011), education is the best way to foster environmental knowledge and awareness among members of the society, especially the young generation. Education is regarded as pivotal in the effort to preserve the environment. Teachers play an important role to educate the younger generation on landslides. Thus, it is important for

teachers to be highly knowledgeable on issues related to landslides. This is to enable them to impart accurate landslides knowledge and information to students. Teachers' commitment is very important to ensure that youth are properly educated on landslides and the environment. Education is also important as it helps youth to deal with the development of environmental technology in the future (Habibah and Vijaya, 2012).

2.0 Literature Review

Environmental Education in Malaysia

Education is considered as the best way to preserve the environment. It is through education that we are able to make the youth aware of the importance of preserving and conserving the environment. This is in line with the Malaysian government's aim to increase youth's knowledge, awareness and understanding of the environment (Muhyiddin, 2013). According to Akinnuoye Modupe and Abd Rahim (2011), environmental education is essential to promote environmental awareness and sustainable development. The positive and negative transitions of development that take place across the globe require stimulation and re-orientation of global implementation of environmental education in schools. This can help to overcome environmental problems and degradation.

In Malaysia, the importance of environmental education is highlighted in the National Policy of the Environment 2002. One of the key areas of the Green Strategies outlined in the policy is 'Education and Awareness'. The emphasis on 'Education and Awareness' is in line with the recommendations of Agenda 21 and there are six strategies for 'Education and Awareness' which are (1) to devise and introduce comprehensive formal and informal environmental education and training strategies and information dissemination programmes; (2) to integrate environment and development into educational activities from school to tertiary institutions of which relevant method and materials will be developed; (3) to establish national centres for excellence for interdisciplinary research and education in environment and development; (4) to review education curricula at all levels to ensure a multidisciplinary approach with environment and development issues; (5) to actively promote non-formal education activities at local and national levels; and (6) to strengthen the role of media in disseminating environmental information (Pudin, 2006).

The promotion of environmental education in Malaysia is focused on addressing environmental challenges like littering, water pollution, air pollution and the degradation of biodiversity. All parties such as federal and state government departments, the private sector, educational institutions and non-governmental organizations (NGOs) are promoting environmental education in both formal and non-formal arenas. In terms of formal arenas, environmental education was introduced by the Ministry of Education in 1990 in schools as Environmental Education Program (EEP), across the curriculum at primary and secondary levels. Environmental education is infused in each subject in schools, rather than taught as a single subject and because of that, environmental education is regarded as an important subject that should be mastered by teachers (Habibah and Punitha, 2010; Ika Liana et al., 2011;

Pudin, 2006). In addition, according to Ika Liana et al. (2011), environmental education also is taught through extra-curricular activities like the Environmental Club.

In terms of non-formal arenas, there are various environmental education activities that are planned and implemented by different organizations such as environmental camps, talks, exhibitions, quizzes, workshops, seminars and tree-planting. Among the organizations that are active in organizing environmental activities include Malaysian Nature Society (MNS), Friends of the Earth Malaysia (SAM), Water Watch Penang (WWP), Environmental Management & Research Association of Malaysia (ENSEARCH) and Centre for Environment, Technology & Development, Malaysia (CETDEM). Besides, every year, environment related events such as Wetlands Day (2 February), Water Day (22 March), Earth Day (22 April), World Environment Day (5 June) and Malaysia Environment Week (21-27 October) are celebrated by Malaysians as a sign of support for the efforts to protect and conserve the environment (Malaysian Nature Society, 2015; Friends of the Earth Malaysia, 2015; Water Watch Penang, 2015; Environmental Management & Research Association of Malaysia, 2015; Centre for Environment, Technology & Development Malaysia, 2015).

Knowledge and Awareness on Landslides

According to Day and Monroe (2000), education is regarded as the best way to help students understand environmental hazards including landslides. Students also need to be exposed to knowledge and awareness about landslides as well as to other natural disasters. As stated by Aini et al. (2003), teachers play a significant role in providing knowledge and information to students and it shows that, teacher's attitude, knowledge and behaviour towards the environment affect students' attitude towards adopting a sustainable lifestyle. There are five effective ways to enhance students' abilities in dealing with natural disasters as stated by Kato et al. (2014). The first is to give students realistic simulation experiences, second, repeat drills, third, provide variety of experiences, fourth, experience listening to emergency broadcasts and related instructions and fifth, use visual materials.

Jamilah and Habibah (2014) indicate that, teachers play important roles in educating the society about environmental problems and natural disasters including landslides. The younger generation needs to be educated with the right knowledge, attitude and behaviour regarding to landslide issues. Teachers can help their students to be aware of landslides and other disasters and promote to them to live sustainably. Teachers' commitment for this cause can help to guide the students to save the environment from being destroyed by human greed (Habibah and Vijaya, 2012).

Previous study conducted by Habibah and Vijaya (2012) revealed that, the incidents of landslides are increasing in the northern region of Malaysia, particularly in Penang Island. This study found that the teachers need to provide a more sophisticated teaching tool to enhance students' knowledge and awareness of the environmental including those that are related to landslides and other disasters. The findings of this study also indicate

that, more than 20 percent of teachers lack knowledge of landslides and below 50 percents have average knowledge on the subject matter.

To date, there is no specific subject in the school curriculum that touches on issues such as risk mitigation and disaster preparedness. Instead, environmental issues are embedded within History, Geography and Science syllabuses. Most of these courses however, only touches basic aspects including definition and causes of natural disasters such as landslides, soil erosion, earthquake and volcanic eruption (Karnawati and Pramumijoyo, 2008; Habibah and Vijaya, 2012). As suggested by Karnawati and Pramumijoyo (2008), educational institutions must provide an attractive and interactive method for teaching and learning of geohazard mitigation and preparedness. In addition, practical exercises for emergency responses also need to be included in the existing curriculum. Geohazard knowledge can be integrated in different courses such as Geography, Sciences, Languages or Religion studies.

According to the Ministry of Education Malaysia (2004), beginning in 2005, environmental education was to be integrated in several courses including Moral Education, Geography, Languages, Religious Education, Civics and Citizenship Education. This includes knowledge and awareness pertaining to landslides. It is necessary to teach students about landslides because they need to have the right knowledge, skills and values on the subject matter, contribute to better practice and the ability to act accordingly during the occurrence of landslides. There are many ways to increase landslide awareness among students through both formal and informal education. Formally, this can takes place in the classroom. Informally, this can takes place through extra-curricular activities, such as participation in Nature Club 3K projects (Safety, Fun and Beauty), quiz competitions, campaign 3R (recycle, reduce and reuse), talks and tours (Habibah and Vijaya, 2012).

Teachers' continuous commitment is necessary in order to educate students on landslides and the environment. Teachers must strive to keep themselves updated with relevant knowledge and to project good awareness, attitude and practice of the environment to students.

3.0 Methodology

This study employed a face-to-face in depth interviews to attain data from the respondents. The respondents were comprised of ten teachers from the Northern region of Malaysia. Five of the respondents are teachers who teach in landslides prone areas and the other five were teachers who teach in non-landslides prone areas. The interviews were conducted at the school premises of the teachers involved. During the interviews, three main issues were discussed; (1) teachers knowledge on landslides; (2) teachers awareness on landslides; and (3) teacher experience in dealing with landslides. The interview sessions were recorded using digital audio recorder and the information provided by the teachers during interviews was also written down on paper. Thematic analysis method was adopted to analyse the data that was obtained from the teachers. Thematic analysis was used to identify, analyze and report patterns which refer to the 'themes' that emerged from the data. This technique also helps to

organize and describe data set in (rich) details (Braun and Clarke, 2006). In order to analyze data using thematic analysis, this study followed the six processes in thematic analysis as suggested by Braun and Clarke (2006). The six processes are; (1) familiarizing yourself with your data; (2) generating initial codes; (3) searching for themes; (4) reviewing themes; (5) defining and naming themes and (6) producing the report.

4.0 Results and Discussion

The findings of this study are discussed based on the research objectives.

4.1 To identify the level of knowledge and awareness among teachers regarding landslides.

In order to identify the level of knowledge and awareness among teachers regarding landslides, the respondents were asked five questions; (1) what are landslides?; (2) what causes landslides?; (3) what are landslides warning signs?; (4) who are responsible in disseminating landslides information to society?; and (5) what are the teachers' roles in educating students on landslide issues?

From the responses obtained, it was found that most of the teachers understand what landslides are. Majority of them stated that landslides are natural disasters that occur naturally, and they can also be caused by human activities. In terms of what causes of landslides, the respondents listed nine causes; soil erosion, heavy rain, tree felling, flood, ground water changes, deforestation, strong wind, illegal timber activities and modification of slopes by construction of roads, railways and buildings.

When asked about landslides warning signs, the teachers responded that, ten signs normally occur before landslides; bulging ground appears at the base of a slope or a retaining wall, water breaks through the ground surface or appears in a location near or at the base of a slope, fences, retaining walls, utility poles, or trees tilt or move, cracks appear on the slope, water pipes break, doors or windows start to stick or jam, cracks appear on the ground or in the foundation, structures on slopes moving away from their original position, sunken or down-dropped road beds and land movement and small slides.

In term of who are responsible in disseminating landslides information to society, the teachers listed four parties which are mass media, government agencies, non- governmental organization and teachers. When probed on what are the teachers' roles in educating students on landslides, majority of the teachers stated that, they need to increase students' knowledge and awareness on landslides. In order to increase students' knowledge and awareness on landslides, the teachers stated that, they must educate students on the matters related to the causes of landslides and ways to prevent them. When educating students on the causes of landslides, teachers should provide examples of activities that could causes landslides so that students can prevent themselves from engaging in such practices in the future. When

educating students on the ways to prevent landslides, the teachers stated that, they should organize environmental activities such as recycling and tree planting. These activities can help to increase students' awareness on the importance of preserving and conserving the environment. This can also help to prevent the occurrences of natural disasters like landslides in the future.

4.2 To investigate the differences in knowledge and awareness regarding landslides between teachers who teach in landslides prone areas and those who teach in non-landslides prone areas.

The findings show that, there is no difference in term of knowledge and awareness regarding landslides between teachers who teach in areas prone to landslides and those who teach in areas that are not prone to landslides due to several factors. The first factor is because the teachers assume that knowledge regarding landslides is basic, and it is something that they should know. In term of awareness regarding landslides, the teachers stated that it is their responsibility as teachers to be aware on landslides, so that they can inform and teach students about this issue. They also believe that, even though there is no specific subject or syllabus that focuses solely on landslides, they can still teach students using different methods such as by relating the importance of preserving and conserving the environment with landslides.

According to the teachers, environmental activities like planting tree is one of the ways to educate students on the importance of maintaining trees to avoid natural disasters like flood and landslides. The teachers also stated that, in the future, they would like to cooperate with the responsible parties like JKR in disseminating knowledge to students on landslides. This is to ensure that information given to students is accurate. Besides, by collaborating with relevant authority like JKR, they would be able to gain better insights about landslides that can be shared with students.

According to the teachers, they like the JKR's landslide warning signs poster. This poster is attractive and easy to understand. Teachers need JKR's assistance in order to disseminate landslides information creatively and effectively to students.

The second factor is that, the teachers do not have experience in dealing with landslides. According to the teachers, their knowledge and

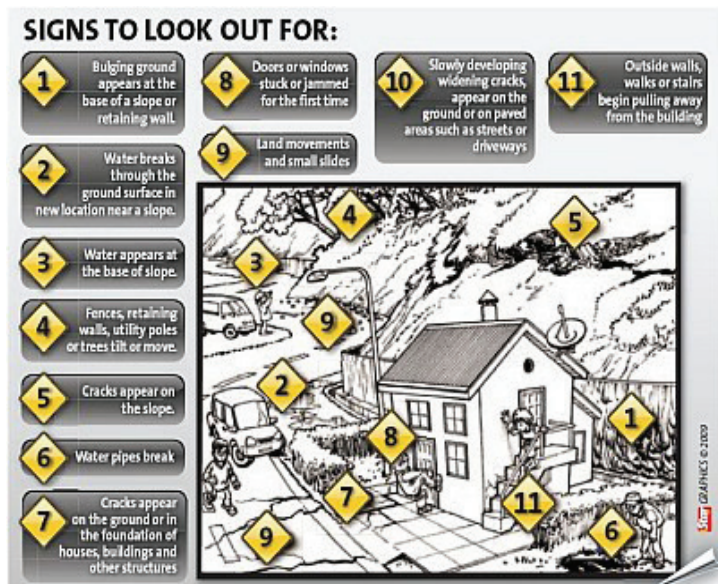


Fig. 2 JKR's Landslide Warning Signs Poster

awareness regarding landslides are mainly based on the information gained through mass media like television and newspaper, and it is not through their own experience. The teachers also admitted that, their knowledge and awareness regarding landslides are also based on their readings of books, posters, journals and syllabuses of subjects such as Geography and Environmental Education that they are required to teach. The teachers indicated that, their knowledge and awareness regarding landslides do not necessarily relate with the location they stay. Instead, according to them, knowledge and awareness of landslides relate closely with attitude. They also stated that, knowledge and awareness on landslides are not only important to those who stay in areas prone to landslides, but also to all Malaysians.

5.0 Conclusion

Formal and informal educations are essential to ensure that knowledge and awareness on landslides are disseminated to the younger generation. Teachers should play an important role to develop knowledge and awareness about landslides among students. In addition, all parties including government agencies and non-government organizations should provide assistance to teachers by sharing materials, information and expertise about landslides. This is to ensure that landslides information can be effectively disseminated to students.

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