



Student Preventions in Dealing Earthquake Disasters

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Abstract

This research aims to reveal the knowledge of students about disasters about : pre disaster knowledge, during disaster and post disaster. This research was conducted at Senior High School State 5 Bukittinggi, West Sumatera, Indonesia. The population of this study is all students of SMA N 5 Bukittinggi. The sample was obtained by purposive random technique. Sample number counted 50 students. The research method used is survey. The results showed that 1). disaster knowledge at pre disaster stage 29.3%, 2). Disaster knowledge at during disaster with percentage 50.4%, 3). Disaster knowledge at post disaster stage indicator 50.1%.

Keywords: Student Preventions, Earthquake, Disaster

Introduction

Indonesia often had earthquake. Earthquake caused of natural processes that result changes of nature in short time suddenly. Indonesia among three plate point of contact, namely the Eurasian, Indo-Australia, and the Pacific Plate. Indian Ocean Plate – Australian Plate continent move relative towards North to Eurasia (7.0 cm /yr), Pacific and Philippine Plate in the East moving Westward both rest on the edge of Southeast Asian Plate (10 cm/th), as part of Eurasia Plate. The large plate movement rest on and counteracted cause several subduction zones and brokes of surface. Beside that this movement will release a number of energy that has been collected for a long time suddenly, where the release process caused a quake with a several value (Kertapati, 2004).

Delfebryadi (2009), Semangko Fault zone is a fault line formed by a collision of Indo Australian Plate that moving at relative speed 50 to 60 mm.yr to Eurasia Plate that relatively motion less. The Existence of this fault has potential to cause a number destructive shallow earthquakes. One of the earthquake-prone areas in Indonesia is Sumatra Island. There were two earthquake source in Sumatra, the first earthquake caused by subduction of Indo-Australian Ocean Plate down the Eurasian Subduction (Sunda Subduction Zone) and two earthquakes associated with an active fault on land i.e Semangko Fault that extending from Aceh to Lampung (Budiman, 2009). Bukittinggi is an area prone to earthquake disaster. Cause of the high risk, if earthquake occur in Bukittinggi then peoples must be ready, and learners as well. Learners are the youth that expected of the future nation, and with knowledge of readiness so that familiar concerning earthquake if an earthquake really happened. By knowing natural disasters occurring in the neighborhood, children should be to know that frequent disasters and provide by knowledge of earthquake disaster preparedness when this natural factor occurs or reccured around the environment, so every learner should be have insight required preparedness of earthquake disaster of Semangko Fault in Sumatra Island, Bukittinggi.

Method

In this research, the research method used is descriptive method. Data collection using questionnaire. To obtain the necessary data in this research is to use the observation and questionnaire. Population in this study all students of social studies at Senior High School State 5 Bukittinggi. For sample use purposive

random sampling technique. Data processing is done by interpretation of data, grouping, interpretation analysis (compare with standard)

Results and Discussion

Bukittinggi as Fault Area Semangko

Bukittinggi City is one of cities that have levels of vulnerability to earthquake disaster. Bukittinggi is located at coordinates 100°20' - 100°25' East Longitude and between 00°16' - 00°20' South Latitude (BPS, 2013).

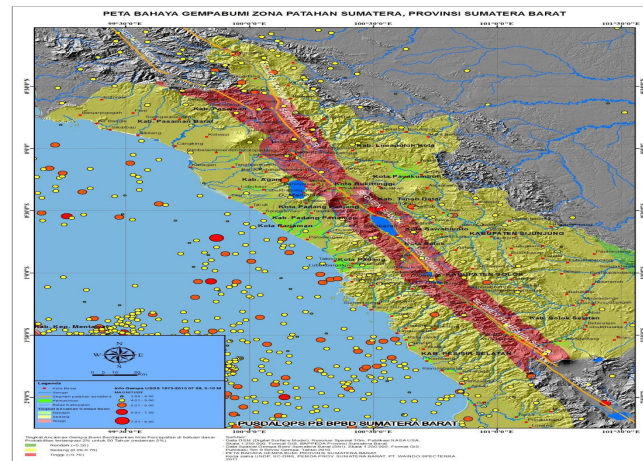


Figure 1. Map of earthquake hazard Fault Sumatra, West Sumatra Province.
(Sumber : Pusdalops PB BPBD Provinsi Sumatera Barat)

Importance that peoples unaware the risk that casued by another major fault, Sesar Sumatra, which passes along the mountain route (Barisan Hills) from Semangko Bay to Banda Aceh. Disaster risk reduction (BNPB, 2011) systematic efforts to develop and implement policies, strategies and act that can minimize casualties and loss or destruction of assets and property caused of disasters, either mitigation way, disaster prevention, or physical mitigation efforts, material social, institutional, behaviour/attitude). List of districts in high threat / hazard zone of earthquake on the Sumatra Fault Zone. The administrative region and the population refers to the 2010 Population Census, BPS. Sumatra Fault.

Table 1. Administrative Region and Population of West Sumatera

No	Regency / City	Number of Districts	Number of Population (Soul)
1.	Regency of Agam	12	152.853
2.	City of Bukittinggi	3	26.816
3.	Padang Panjang City	2	47.008
4.	Solok City	2	59.317
5.	Regency of lima puluh koto	1	12.517
6.	Regency of Padang Pariaman	3	104.841
7.	Regency of Pasaman	11	244.076
8.	Regency of West Pasaman	4	116.127
9.	Regency of west pesisir	7	251.463
10.	Solok district	14	345.990
11.	Regency of South Solok	3	89.098
12.	Tanah Datar District	10	255.772
	Total	72	1.705.878

Source: BPS, 2010



Efforts to increase mitigation and disaster risk reduction related to earthquake and landslide in the land area of Sumatra is an urgent need so it needs to be deployed all efforts and resources. In the long-term program, it is necessary to design and implement Road Map of Action Plan for Mitigation of Sumatera Fault Earthquake throughout the provinces of West Sumatra and Sumatera in general, covering the following programs: (1) Preparation of Disaster Mitigation Scenario and Contingency Plan, (2) Socialization in order to increase public awareness and policy determination, (3) Training, education, simulation for apparatus and community, (4) Review the spatial arrangement of residential areas in order to realize a safe area against the earthquake and landslide, (5) Relocation of landslide prone areas, (6) Retrofitting buildings with appropriate technology to be safe against earthquakes, (7) Strengthening the institution of Resilient Nagari Disaster by empowering the potential of existing local wisdom, (8) Strengthening human resources and early detection equipment, monitoring and control of disaster management operations, (9) Preparing equipment, materials and personnel for emergency disaster management, (10) Dissemination of earthquake and landslide warning signs, propaganda leaflets and promotion of earthquake and landslide alert.

In the future it is expected that the involvement of all stakeholders, government, community and the business world in the efforts of preparedness and disaster mitigation in order to reduce the risk of fatalities loss, material loss, infrastructure and other sectors that may disrupt economic stability to politics and public life in general.

Knowledge of Student Preparedness in Dealing Earthquake Disaster

Preparedness is an effort implemented to anticipate the possibility occurrence a disaster for avoiding casualties, loss of property, and change of life system of society in the future. Disaster preparedness is a condition of society individually communities or the groups that have the ability to anticipate the possibility in the future (Gregg et al., 2004; Perry and Lindell, 2008; Sutton and Tierney, 2006) In previous research by Tobing (2013) participation has an active and passive meaning. Active participation means subject activity has initiative, and passive participation occurs there is an initiator (usually a local community leader). Thus, participation can begin as a social act, and continues to be a social movement. Participation must therefore be understood through the "concept of social change", which enables the effort for change or improvement in accordance with the objectives of a program.

In a previous study conducted by Wulandari (2013) reported that student participation is defined as a process of involvement of students consciously and concretely in a series of development processes in terms of disaster, in dealing with disaster risk carried out by actions that are through an emergency response, the entire series of activities beginning to end (cycle) that includes: preparedness, disaster, and recovery. According to Ramli (2010) stage in dealing disaster there are three stages: (1) Pre-disaster, this stage includes the stage of alertness, early warning and mitigation. Preparedness is a series of actions undertaken to anticipate disaster through organizing through appropriate and efficient steps. Disaster mitigation, according to PP No 21 of 2008 in Ramli (2010: 32) is a series of efforts to reduce disaster risks through physical development, awareness raising and capacity building for disaster threats. Disaster mitigation is done through technical approach, human approach and administrative approach and cultural approach, (2) When disaster occurrence consists of emergency response and disaster response. Emergency response is a series of activities undertaken during a disaster event to respond to adverse impacts, (3) Post Disaster consists of stages of rehabilitation and reconstruction. Rehabilitation is the restoration and restoration of all aspects of public services at an adequate level after a disaster. While the reconstruction is the reconstruction of all facilities and infrastructure in the disaster area.

Target communities for measuring disaster preparedness are three stage: 1) community elements (taken from heads of households) 2) Education Units (Representative Teachers / Students), 3) Bureaucratic

Elements (Government). In this study measured is limited to only one item, ie the student community. Analysis The level of knowledge with approach to calculate the level of knowledge used 1) Do Weighting Against Data, 2) Classification of Data Analysis Based on Criteria Interpretation Score 3) Earthquake Disaster Knowledge

Table 2. Criteria Interpretation Score

No	Number (%)	Information
1.	0 – 20	Very weak
2.	21 - 40	Weak
3.	41 - 60	Enough
4.	60 - 80	Strong
5.	80 – 100	Very strong

Source: Ridwan, Sunarto (2012)

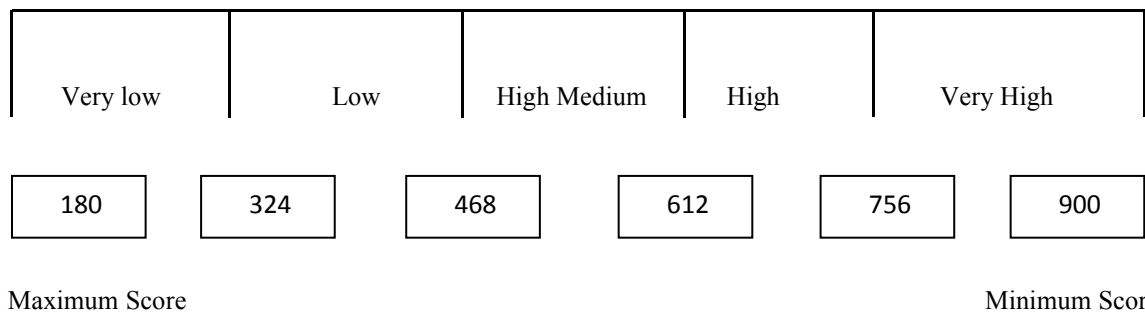


Figure 2 Categorization of Student Preparedness in the Form of Knowledge

Based on the picture above obtained information that the actual score achieved by students, as follows:

1. Pre disaster. Knowledge students of senior high school stage 5 Bukittinggi students in pre disaster stage in disaster risk reduction in Kota Bukittinggi in accordance with the results of questionnaires given to 36 respondents obtained the following results; respondents included in very low category with the percentage of 29.3%,
2. During Disaster. Knowledge of students in the current stage of disaster in general the results of the questionnaire as follows; 36 respondents included in the category high enough with the percentage of 50,4%,
3. Post Disaster. Knowledge of students in disaster risk reduction in Bukittinggi City at post disaster stage in general result of questionnaire as follows; respondents included in the category is quite high with the percentage of 50.1%.

In general, knowledge atudents of senior high school stage 5 Bukittinggi in disaster risk reduction Earthquake in the post-disaster phase included in the low category. The low level of knowledge of senior high school students stage 5 Bukittinggi in disaster risk reduction Earthquakes based on the results of research are: (1) Students have not been able to self-mitigate with understanding to reduce disaster risk; (2)



The knowledge of students relating to disaster knowledge and post disaster is quite high. Knowing about disaster, students are measured with disaster knowledge when pre-disaster, during disaster and post disaster, to see attitudes and understand them with the dangers of earthquake disaster caused by the tectonic plate shift in Bukittinggi in the residence they inhabit. In order for students to cope with earthquakes, and have insight into the dangers of their homes due to the fault of the still active island of Sumatra in the event of a shift in the fault zone of the island and the activity of an active volcano.

Conclusion

Based on research result 1). disaster knowledge at pre disaster stage 29.3%, 2). Disaster knowledge with Disaster Indicator with percentage 50.4%, 3). Disaster knowledge post disaster stage indicator 50.1%. Based on the research result of low knowledge of disaster of N 5 Bukittinggi high school students in earthquake risk reduction in Bukittinggi City. Based on the results of the study are: (1) The low knowledge of students about pre-disaster is still less mastering; (2) students' knowledge about disaster and post disaster is quite high. To improve pre-disaster preparedness students should know more about the preparedness, characteristics of the disaster and prepare whatever needs to be prepared when the disaster will occur.

References

- Budiman, Arif. (2009). "Kajian Karakteristik Gempa Bumi Sumatera Barat" *Jurnal Ilmu Fisika (JIF)*, September 2009, Vol 1 No 2
- Gregg, C. E., Houghton, B. F., Johnston, D. M., Paton, D., and Swanson, D. A. (2004). The Perception of Volcanic Risk in Kona Communities from Mauna Loa and Hualalai Volcanoes, *Hawaiki Journal of Volcanology and Geothermal Research*, 130, 179-196.
- Kertapati, E. K., January 2004; *Earthquake Activity in Indonesia*, Center for Geological Research and Development. Agency for Research and Development, Department of Energy and Mineral Resources.x
- BPS. (2013). *Bukittinggi City In Figures*
- Ramli, Soehatman (2010). *Disaster Management*. Jakarta: Dian Rakyat
- BPS. (2010). *Disaster management Agency*. (2013). *Disaster in Indonesia*. BPNP
- Delfebriyadi. (2009). Spectral Area Response Bukittinggi For Cable Bridge Planning Study Stayed Sianok Gorge. No. 31 Vol.2 Yrs. XVI April 2009
- Pusdalops PB BPBD West Sumatera Province. *Map of Earthquake Hazard Fault Zone Sumatra, West Sumatera Province*. (2013)
- Tobing, Rumiati. (2013). Implementation Of Community Participation Concept In Rebuilding Housing Post Earthquake Disaster. *Research Inveny: International Journal Of Engineering And Science* Issn: 2278-4721, Vol. 2, Issue 3 (February 2013), Pp 55-63