Individual Household Preparedness in Ujong Blang Village, Lhokseumawe in Facing Tsunami

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A B S T R A C T

A large number of victims during the 2004 tsunami in Aceh showed that community preparedness in facing the tsunami disaster was still low. Lhoksumawe is one of the cities in Aceh Province that is at high risk of the tsunami disaster. Ujong Blang is one of the high-risk villages in Lhokseumawe. This study aimed to determine the level of community preparedness in the Ujong Blang village is facing a tsunami disaster. This study's results can be used as input for the Lhokseumawe government in determining policies related to disaster risk reduction, especially in community preparedness in facing the tsunami disaster. Community preparedness is measured using preparedness parameters developed by LIPI – UNESCO/ISDR. This research is descriptive quantitative research with a survey method. Multistage random sampling was applied as the sampling technique with a sample size of 100 respondents. Data were analyzed using the descriptive percentage method. The used theories refer to the preparedness parameters developed by LIPI-UNESCO. Based on data analysis, it can be concluded that the level of individual/household preparedness in facing tsunami disasters in Ujong Blang Village is in the medium/almost ready category with a percentage of 49.5% and the preparedness index value of 225.05. The level of knowledge and attitude parameter was in the high/ready category with a parameter value of 4.4 and a percentage of 62%. On the other that, the parameters of policy and guidance; resource mobilization; disaster warning system; and emergency response plans were in the low/unprepared category with parameter value of 0,44 (70%); 0,98 (75%); 1,13 (70%); dan 1,58 (75%), respectively.

Kata kunci:
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A B S T R A K

Banyaknya korban jiwa saat terjadi tsunami Aceh tahun 2004 menunjukkan bahwa kesiapsiagaan masyarakat dalam menghadapi bencana tsunami masih rendah. Lhoksumawe berisiko tinggi terhadap bencana tsunami. Salah satu desa di Kota Lhokseumawe yang berisiko adalah Desa Ujong Blang. Tujuan penelitian ini untuk mengetahui tingkat kesiapsiagaan masyarakat di desa Ujong Blang dalam menghadapi bencana tsunami. Kesiapsiagaan masyarakat diukur menggunakan parameter kesiapsiagaan yaitu pengetahuan dan sikap; kebijakan dan panduan; perencanaan tanggap darurat; sistem peringatan bencana; dan mobilisasi sumberdaya. Hasil penelitian ini dapat dijadikan bahan masukan pemerintah kota Lhokseumawe dalam menentukan kebijakan terkait pengurangaan risiko bencana, khususnya pada kesiapsiagaan masyarakat dalam menghadapi bencana tsunami. Penelitian ini adalah penelitian kuantitatif deskriptif dengan metode survei. Penentuan jumlah sampel menggunakan multistage random sampling dengan jumlah sampel 100 responden. Data hasil survei dianalisis dengan metode deskriptif persentase. Hasil penelitian diketahui bahwa tingkat kesiapsiagaan individu/rumah tangga dalam menghadapi bencana tsunami di Desa Ujong Blang dalam kategori sedang/hampir siap dengan persentase 49,5% dan indeks kesiapsiagaan 225,05. Pada parameter kesiapsiagaan, tingkat pengetahuan dan sikap masuk dalam kategori tinggi/siap yaitu dengan nilai parameter 4,4 dan persentase 62%. Namun, tingkat kebijakan dan panduan; tingkat rencana tanggap darurat; tingkat sistem peringatan bencana; tingkat mobilisasi sumberdaya masih dalam kategori rendah/tidak siap yaitu dengan nilai 0,44 (70%); 1,58 (75%); 1,13 (70%); 0,98 (75%).

Introduction

The tsunami disaster that occurred in Aceh Province in 2004 was one of the biggest disasters in Indonesia. The catastrophe that began with an earthquake that occurred on December 26, 2004, in Aceh Province resulted in losses of up to Rp 42.7 trillion, and thousands of people died. Based on the Indonesian Disaster Data and Information (DIBI), the earthquake that followed the tsunami resulted in 165,791 deaths, 2,830 people injured, 518,450 people had to be displaced, 179,312 houses were severely damaged, 240 health facilities damaged and 1,226 educational facilities (DIBI), 2004). Many fatalities in this incident show that the community's preparedness in dealing with the tsunami disaster is still low. Considering that the tsunami disaster is a disaster that has claimed the most lives and caused damage in a short time, the paradigm of disaster management that is responsive must be changed into a preventive activity. These preventive activities are expected to reduce disasters so that victims or losses due to hazards can be reduced.

One of the preventive activities is to reduce disaster risk. Reducing disaster risk is a practical investment to prevent future losses. One way to reduce disaster risk is to increase community preparedness in dealing with disasters. Such preparedness will help the community form and plan what actions need to be taken when an emergency occurs, especially the tsunami disaster. Success in handling and evacuating/displaced during a tsunami depends very much on the preparedness of the community itself.

The preparedness of a government, a community group, or an individual are actions that must be taken to quickly and efficiently deal with a disaster situation (Carter, 1991). Disaster preparedness is one of the dimensions in disaster management. It is often associated with actions that enable individuals and communities to respond to disaster events quickly and effectively (Sutton, 2006). With this preparedness, it is expected that the government, a community group, or individual will be better prepared to face the risks of existing disasters. Things that are included in the preparedness efforts include understanding and analyzing the relationship between the risk of threats and vulnerability and using knowledge to reduce the impact of disasters (Claire, 2010).

Based on the background above, in this paper, the author focuses on individual/household preparedness in Ujong Blang Village, Banda Sakti District, Lhokseumawe in dealing with the tsunami disaster. Individuals/households play an essential role in disaster preparedness. Individual/household knowledge about what they have to do to prevent a disaster from happening and what they have to do when a disaster occurs is an appropriate and effective determinant of safety.

The choice of research location in Lhokseumawe is because Lhokseumawe is one of the cities in Aceh Province, which is at high risk of the tsunami disaster. Based on the 2016-2020 Aceh Disaster Risk Assessment, in Lhoseumawe City, 6,032 people were exposed to the tsunami disaster (BNPB, 2016). The amount is spread along the coast in Lhokseumawe, one of the villages is Ujong Blang village. The earthquake that was followed by the tsunami in Aceh in 2004 could be an important lesson learned for the people of Lhokseumawe to always be ready in disasters.

The author uses the LIPI – UNESCO / ISDR standard parameters to measure individual/household preparedness. The LIPI-UNESCO / ISDR parameters are divided into 5 (five) parameters, namely: 1. Knowledge (P) relating to natural phenomena and preparedness, 2. Policies and guidelines (K), 3. Plans for disaster emergencies (RDB), 4. Disaster warning systems (PB), and 5. Mobilizing resources (MSD) (LIPI, 2006). These five parameters are standard parameters to measure people's preparedness in facing disasters. The level of preparedness is measured based on the index value of the combined five parameters. The calculation is carried out on the main stakeholders of preparedness, namely individuals/households, government, and school communities. In this study, preparedness calculations will only be measured at one of the main stakeholders, namely individuals/households. Because they are the first to deal directly with disasters. Their safety in times of catastrophe depends on their preparedness.

Methods

This research is a descriptive quantitative research with survey method. The population in this study were all households in the village of

Ujong Blang. The community was taken from 4 hamlets, namely Kuala Mamplam Hamlet, Sangga Mara Hamlet, Mesjid Hamlet and Tanoh Lapang Hamlet with 1,022 families. The sampling technique uses multistage random sampling. Multistage sampling is a particular case of cluster sampling, wherein the second stage, we do not select all elements of the cluster, but some parts are chosen randomly (Barreiro, 2001). In this study, the authors used two stages: the first stage using stratified random sampling and the second stage using simple random sampling. From 1,022 families in Ujong Blang Village, the writer divides it into 4 clusters, namely four hamlets in Ujong Blang Village. From each of these clusters, the writer took a random sample with a 10% margin error. Based on these calculations, the number of samples is 25 respondents in each cluster/hamlet. The selection of respondents will be made randomly with a total number of respondents of 100 respondents.

Result and discusion

Knowledge and Attitudes Toward Disaster Risk

Several indicators to measure the knowledge and attitudes of individuals/households about the tsunami disaster in this study, which are: understanding tsunamis, the causes and signs of tsunamis, and the activities to be carried out in the event of a tsunami disaster. This knowledge is expected to be the basis for individuals/households to be better prepared to face an emergency. Learning about the hazard will allow individuals to assess the magnitude of the risk caused by the hazard (Gregg, 2004). The study results show that the level of knowledge and attitudes of individuals/households in Ujong Blang Village towards the risk of tsunami disaster is in the high criteria, with a parameter value of 4.4. As a percentage, 62% of individuals/households in Ujong Blang Village have a high level of knowledge and attitudes towards tsunami disaster risk.

Knowledge about the tsunami disaster is based on awareness to carry out further preparedness parameters, namely emergency planning, resource mobilization, and early warning. Education is also the basis for doing the right activities in anticipating the coming disaster. One of the fundamental questions used to measure community knowledge is knowledge of what a tsunami disaster is, and 85% of respondents know it. Most of the knowledge about tsunamis come from individual/household experiences.

Knowledge about disasters is usually gained from the experience of the community itself. Disasters that they have experienced will give them knowledge about a disaster's signs or determine their anticipatory steps. People in Ujong Blang Village learn about the tsunami due to the tsunami disaster in Aceh in 2004. The 2004 tsunami provided valuable knowledge for the people of Aceh, especially at the study site. A sudden tsunami caused such a devastating victim because almost the entire population did not yet have a sufficient knowledge base to recognize a tsunami's signs. The experience of a tsunami disaster that has been experienced or seen makes most respondents recognize a tsunami event's characteristics. This is proven by 62% of respondents who know the signs of a tsunami. Following Gunawan (2008) statement, that preparedness in dealing with natural disasters is gained from experience. That experience will teach individuals to prepare for disaster.

Respondents' understanding of tsunamis' causes varies greatly, but 70% of respondents agree that earthquakes also can cause tsunamis. Dudley (Dudley, 2006) said that tsunamis are caused by earthquakes, especially those that occur on the seabed. Also, other causes of tsunami disasters are landslides, volcanic eruptions, or the fall of meteors that arise at sea. One sign of a tsunami is that an earthquake will occur first. That is what is understood by residents in Ujong Blang Village.

Questions about the tsunami's impact, as many as 68% of them answered knowing the effects of the tsunami, and most of them explained that the tsunami caused damage. This understanding will determine the attitude that will be taken when the tsunami disaster comes. 83% of respondents answered knowing how to save themselves when the tsunami struck.

The knowledge and attitudes of individuals/households about the tsunami disaster can be said to be in the high category with a parameter value of 4.4 or if present, as much as 62% of individuals/households in Ujong Blang Village have the level of knowledge and attitudes towards tsunami risk is high. This result shows that the individual/household knowledge about the tsunami disaster is already quite broad. A briefing

should accompany this sufficient knowledge on appropriate tsunami disaster management measures.

Policies and Guidelines

The second parameter is the policies and guidelines relating to preparedness to anticipate the tsunami disaster. Based on this study's results, only 27% of respondents knew about policies related to readiness to anticipate the tsunami disaster. Simultaneously, those who know the guidelines for action plans in dealing with the tsunami disaster are only 17% of respondents. The level of policies and guidelines relating to preparedness to anticipate the tsunami disaster is still low, with a parameter value of 0.44. Individuals/households do not yet know about tsunami disaster preparedness policies and guidelines due to a lack of local governments' socialization. Also, based on the questionnaire provided, individuals/households have different answers about the evacuation site. This shows no written agreement on tsunami disaster management plans or specific guidelines for dealing with tsunamis.

Following LIPI and UNESCO research, one of the concrete efforts in implementing disaster preparedness activities is the existence of policies and guidelines. The procedures required are public education policies, emergency response plans, disaster warning systems, and resource mobilization, including funding, management organizations, human resources (HR), and essential facilities for disaster emergencies. One form of policy is to be concretely stated in regulations, such as Decree or Perda, accompanied by clear job description (LIPI, 2006). As many as 70% of respondents have a low or unprepared level of knowledge about policies and guidelines.

Emergency Response Plan

An emergency response plan must follow the knowledge held by individuals/households. The relatively good understanding of individuals/households needs to be followed by actions to improve household preparedness. The data obtained shows that the level of plans for a tsunami emergency is still low/unprepared, with a score of 1.58. As a percentage, as many as 75% of respondents still had no plans for a tsunami emergency. Only 6% of respondents have an emergency response plan. This figure shows that individuals/households in Ujong Blang Village are not ready to rescue ideas during a disaster emergency. This can be related to individual/household knowledge about policies and guidelines. Respondents' ignorance regarding guidelines and policies regarding preparedness in dealing with tsunami disasters leaves individuals/households without an emergency response plan.

Based on the data obtained, only 36% of respondents knew the evacuation location during the tsunami disaster. The answers to the evacuation sites mentioned among respondents were also different. Besides, only 37% of respondents have prepared disaster prepared bags. Based on the explanation given, respondents only made essential documents, crucial medicines, fast food that was sufficiently durable, alternative communication tools, family photos, and important addresses/telephone numbers they had not yet prepared. Perry and Lindell (2008) said preparedness activities carried out at the household level can be done by preparing emergency tools that can be used to anticipate natural hazards. In identifying ownership of emergency, equipment refer to FEMA (2013), first aid kit/box, canned food and a minimum of 2 liters of drinking water in reserve for a few days, a collection of significant telephone numbers, masks, duplicate house keys, and vehicle keys, rope, carpentry equipment, and photocopies of important documents.

Tsunami Disaster Warning System

One component of preparedness is the existence of a disaster warning system. The early warning system in Ujong Blang Village is still traditional, using sirens. The early warning system is fundamental because it is a sign to the community to respond to disasters that occur immediately. Based on the data obtained, the level of disaster warning system in Ujong Blang Village is still low/unprepared, with a parameter value of 1.13.
As a percentage, 70% of respondents answered that they did not know the tsunami warning system. The low value of the parameters indicates that there has been no socialization from the local government regarding the early warning system. The socialization can be carried out by the regional government by adjusting local wisdom in the area. Only 13% of respondents answered

knowing the tsunami early warning system was a siren. The government can adopt the habits of the local community to disseminate early warning systems. One of the adjustments that can be done is to use a siren as a marker for a tsunami disaster.

Resource Mobilization

The capacity of individuals/households in Ujong Blang Village who live in areas prone to tsunami disasters both in the form of knowledge and skills must be possessed to deal with the tsunami disaster. However, only 7% of the people had received tsunami emergency response training. In addition, 71% of respondents answered that they did not prepare facilities to deal with the tsunami. Overall, the mobilization of individual/household resources in Ujong Blang Village to deal with the tsunami disaster is still low, with a parameter value of 0.98.

A low par value indicates that individuals/households' capacity is still low in mobilizing their resources during the tsunami disaster. This is because their skills are still lacking in terms of first aid and evacuation of victims. Based on information received, the community has never received preparedness training.

Individual/Household Preparedness Level

Based on the results of the calculation of 5 (five) preparedness parameters, namely knowledge and attitudes; policies and guidelines; emergency response planning; disaster warning system; and resource mobilization, the level of individual/household preparedness in Ujong Blang Village can be obtained in the face of the tsunami disaster, with a preparedness index value of 225.05. Lift is in the category of being or almost ready. If present, the level of individual/household preparedness in Ujong Blang is 49.5%.

Based on the assessment conducted, Ujong Blang individuals/households have a high index value only in knowledge and attitude parameters. The level of preparedness assessment on policy and guidance parameters, emergency response planning, disaster warning systems, and resource mobilization is still low. Appropriate and effective preparedness can be seen from how much the community responds in the face of disasters (Herdwinarti, 2013).

Conclusion

Based on data obtained after going through a series of research steps on individual/household preparedness in Ujong Blang Village, the following conclusions are obtained. The level of knowledge and attitudes of individuals/households in Ujong Blang Village in the face of the tsunami disaster Ujong Blang Village is classified as high/ready, with a percentage of 62% of individuals/households having a high level of knowledge and attitude with a parameter value of 4.4.

The level of individual/household policy in Ujong Blang Village in dealing with the tsunami disaster is relatively low/unprepared. 70% of individuals/households have a low/unprepared level of knowledge about the policy with a parameter value of 0.44.

The level of individual/household emergency response plans in dealing with the tsunami disaster in Ujong Blang Village is low / not ready. 75% of individuals/households have a low level of the emergency response plan, with a parameter value of 1.58.

The level of disaster warning system in dealing with the tsunami disaster in Ujong Blang Village is low / not ready. 70% of individuals/households have a tsunami disaster warning system that is still low, with a parameter value of 1.13.

The level of resource mobilization in dealing with the tsunami disaster in Ujong Blang Village was low / not ready, as much as 75% of individuals/households had a low level of resource mobilization in the face of the tsunami disaster, with a parameter value of 0.98.

The level of individual/household preparedness in Ujong Blang Village in dealing with tsunami disasters is classified as moderate / almost ready with a percentage of 49.5% and with a disaster preparedness index score of 225.05.

Reference

Badan Nasional Penanggulangan Bencana. 2010. Peta Indeks Risiko Bencana Tsunami. Jakarta: Badan Nasional Penanggulangan Bencana.

Badan Nasional Penanggulangan Bencana. 2011. Panduan Perencanaan Kontijensi Menghadapi Bencana (Edisi Kedua). Jakarta: Badan Nasional Penanggulangan Bencana.

Badan Nasional Penanggulangan Bencana. 2016. Kajian Risiko Bencana Aceh 2016-2020. Jakarta.

Barreiro P. L, Justo P. A. 2001. Management Mathematics for European Schools. Population and Sample Sampling Techniques.

BNPB, BPS, UNFPA. 2013. Pilot Survei Pengetahun, Sikap & Perilaku Kesiapsiagaan Mengahadapi Bencana Kota Padang 2013. Jakarta: Badan Nasional Penanggulangan Bencana.

Carter, W. N. 1991. Disaster Management: A Disaster Manager ́s HandBook. Manila: Asian Development Bank.

Data dan Informasi Bencana. 2004. "Bencana Alam Provinsi Aceh Bulan Desember 2004", http://bnpb.cloud/dibi/tabel1a, diakses 25 September 2019.

Dudley, W.C, Min L. 2006. Tsunami !. Bandung : Pakar Raya.

FEMA. 2004. Are You Ready?An In-depth Guide to Citizen Preparedness. U.S. Fire Administration, Emmitsburg.

Gregg, C.E., B.F. Houghton, D. Johnston, D. Paton, and D.A Swanson. 2004. "The Perception of Volcanic Risk in Kona Communities from Mauna Loa and Hualalai Volcanoes, Hawai'I". Journal of Volcanology and Geothermal Research, Vol. 130. 179-196.

Gunawan. 2008. Kondisi Sosial Masyarakat dalam Manajemen Bencana. Yogyakarta.

Herdwinarti, F., dan Sudaryono. 2013. "Perbedaan Kesiapsiagaan Menghadapi Bencana Ditinjau dari Tingkat Self-Efficacy pada Anak Usia Sekolah Dasar di Daerah Dampak Bencana Gunung Kelud". Jurnal Psikologi Kepribadian dan Sosial. Vol. 2, No. 01.

LIPI-UNESCO/ISDR. 2006. Kajian Kesiapsiagaan Masyarakat dalam Mengantisipasi Bencana Gempa Bumi dan Tsunami. Jakarta: LIPI.

O'Meara, C. 2010. Disaster Preparedness Planning Guide. London: Y Care International.

Perry R.W. dan M.K. Lindell. 2008. "Volcanic Risk Perception and Adjusment in Multi Hazard Environment". Journal of Volcanology and Geothermal Research, Vol. 172. 170-178. 2008.

Puspito, Nanang T. 2010. Mengelola Resiko Bencana di Daerah Maritim. Bandung: ITB.

Sutton J, Tierney K. 2006. Disaster Preparedness: Concept, Guidance, and Research. Boulder: University of Colorado.