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Preparedness of Special Schools in Banda Aceh towards Earthquake and Tsunami Disasters

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Abstract. People with disabilities are a group at high risk during a disaster, due to limited abilities and access to the physical environment, information and communication in the community. The purpose of this study was to determine the level of preparedness of students and teachers as well as facilities of Special School in Banda Aceh towards earthquake and tsunami disasters. Data was collected using observation and survey methods using a standardized questionnaire developed by IIS-UNESCO/ISDR, then processed using index analysis. The results of the research on student preparedness were in the ready category, while teacher preparedness showed very ready results with parameters: knowledge and attitude category, emergency response plan category, disaster warning system category, and resource mobilization. Facilities at special schools are generally available in good condition. Although the preparedness of students, teachers and facilities tends towards the acceptable level, it is very important to socialize and simulate the disaster preparedness and increase the capacity to deal with earthquake and tsunami disasters that cannot be predicted when they will occur.
Keywords: Preparedness, Disaster, Earthquake, Tsunami, Special School

Introduction

Indonesia as a country with a high level of disaster vulnerability due to its geographical position and a high level of disaster risk due to its population density, should pay attention to the safety level of each citizen in disaster risk management and reduction efforts (Probosiwi, 2013). Natural disaster events cannot be predicted with certainty when they will occur. Indonesia is one of the countries prone to disasters. One example of a natural disaster is an earthquake and tsunami disaster. The earthquake and tsunami that occurred in Aceh on December 26, 2004, devastated Aceh and its surrounding areas and caused the largest number of casualties recorded in the modern history of Indonesian natural disasters. The questions remain on the extent to which this assistance has been sustained at the school level, before the fateful 2004 Tsunami, it can be said that internally, Banda Aceh city (and Aceh Province generally) had almost no (formal) disaster education efforts (Sakurai et al., 2018). Besides raising the student awareness about earthquakes, the national earthquake and safety school drill also aims at promoting preparedness for earthquakes, improving safety culture as well as making students familiar with earthquake and addressing how to cope (Hosseini & Izadkhah, 2020).

Enhancing preparedness is crucial for minimizing disaster risks for coastal communities (Amri et al., 2024). As a social subsystem that is an inextricable part of the community, schools have the potential to play a role as a principal actor in building community resilience against disasters through their mandate for education (Oktari et al., 2018). Through a curriculum, teachers possess the opportunity to transfer knowledge and skills on the disaster risk reduction to students and their parents, and hereby, they contribute to increasing society's disaster resilience (Shaw et al., 2004; Izadkhah et al., 2012; Preston, 2012; Briceño, 2015; Elangovan & Kasi, 2014 ; Tatebe & Mutch, 2015; Gokmenoglu et al., 2021). School disaster education programs help teachers and students develop a safety culture in their close environment and play a direct role in the attainment of necessary knowledge and skills (Gokmenoglu et al., 2021).Preparedness carried out at school can also provide knowledge to students and all school community members regarding disaster risk management.

Preparedness is one of the efforts made to anticipate the possibility of a disaster to avoid casualties, property losses and changes in the way people live in the future (Febriana et al., 2015). Preparedness really needs to be done in schools because schools are one of the vulnerable places and have a high risk if an earthquake occurs during school hours. This is because during these hours, many students and teachers are conducting learning activities. Disaster preparedness carried out in schools is a very important activity and is also the responsibility of all school residents, both teachers, students, and all components in the school (Setiawati, 2019). Vulnerable groups are the most at risk of disasters. Based on Indonesian Law No. 24/2007, vulnerable groups consist of infants, toddlers, children, pregnant/breastfeeding mothers, persons with disabilities and the elderly.

People with disabilities are reported to be very vulnerable to becoming victims of disasters, either injured or dying from disasters in significant numbers. The number of people with disabilities who die during disasters can reach twice that of the public (Novalita & Widowati, 2018). People with disabilities are vulnerable in disaster situations due to the barriers and needs they experience, such as from physical, intellectual, mental, and sensory aspects. People with disabilities are a high-risk group during disasters, due to their limited abilities and due to limited access to the physical environment, information and communication in the community (Probosiwi, 2013). Disasters have a significant impact on parents and their children, as well as the vulnerability of individuals with autism spectrum disorder (IWSAD) (Aslan, 2024).

The disaster preparedness of local governments in handling people with disabilities is to integrate prioritization and opening participation opportunities for people with disabilities into every activity starting from assessment, planning, institutional frameworks, information systems, resource bases, warning systems, the establishment of response mechanisms, education, socialization, and simulation (Wulandari, 2017) The forms of preparedness needed by the visually impaired are the implementation of standard operating procedures and capacity building education. The knowledge and attitudes of the visually impaired towards earthquake and tsunami disasters are adequate. Sources of knowledge and attitudes are from families, orphanage managers and disability care communities. Forms provided through discussions and socialization (Mubarrak & Husin, 2017).

Based on the 2004 tsunami earthquake and other earthquakes such as the one that occurred in 2012, research related to preparedness in special schools needs to be studied. This is because groups with disabilities are the most vulnerable groups during disasters, especially earthquakes and tsunamis. School is one of the institutions that has a strategic position and plays an important role in efforts to prevent early disasters and mitigate them because various information, knowledge, and skills can be transmitted effective to the entire school community and society (Ira & Purwantara, 2021). Therefore, researchers want to conduct research to determine the level of preparedness of students and teachers

in Banda Aceh State Special Schools in facing disasters, especially earthquakes and tsunamis so that they can map the capacity of special schools in facing disasters that can reduce mortality and material losses. Therefore, this research is aimed at finding out the level of preparedness of students and teachers in facing earthquakes and tsunamis and to find out the facilities of the special school in preparedness for earthquakes and tsunamis.

Methods

This research is a quantitative study with the survey method chosen to determine the level of preparedness of students and teachers at special schools in facing earthquake and tsunami disasters. Using observation of the preparedness facilities of Banda Aceh Special School. The place and time of research at special school from July 31 to August 5, 2023. The population in this study was 173 students and 38 teachers at special school. The sampling was done by simple random sampling, determining a sample of 30% of the population, namely 52 students and 12 teachers.

Data collection techniques by distributing questionnaires and using observation sheets of preparedness of special school facilities. The questionnaire used is a standardized questionnaire that has been developed based on the concept of disaster preparedness by the Indonesian Institute of Sciences (IIS) in collaboration with the United Nations Educational and Scientific Cooperation (UNESCO) which is fully supported by the International Strategy for Disaster Reduction (ISDR) (Hidayati et al., 2006). The data analysis technique used in this research is descriptive statistics, namely index analysis. Assessment through the index is done to determine the level of preparedness. Index is the value of comparison between one number and another. The comparison value is multiplied by 100 for convenience. Index assessments are carried out in several stages of assessment. The first stage is measuring the index of each parameter. The second stage is to calculate the combined index of the parameters. The index value is in the range of 0-100, so the higher the index value means the higher the level of preparedness of students and teachers. The level of preparedness of students and teachers in this study is divided into five categories.

The index numbers studied are indices of 5 parameters of individual preparedness for earthquake disasters, namely 1) knowledge and attitudes; 2) emergency response plans; 3) disaster warning systems; and 4) resource mobilization (Zainatunnisa & Satria, 2018). According to Hidayati et al. (2006) to determine the index value per parameter, the following formula was used:

$$\text{Index} = \left(\frac{\text{Sum of parameters real score}}{\text{Maximum Score of the parameters}}\right) \times 100 \qquad (1)$$

After the calculation is done, the level of student preparedness is classified based on the index value sourced from IIS and UNESCO, 2006, which is as follows in Table 1.

Table 1. Disaster preparedness index values

No	Index Value	Category
1	80-100	Very ready
2	65-79	Ready
3	55-64	Almost ready
4	40-54	Less ready
5	Less than 40 (0-39)	Not ready

(Source: Hidayati et al., 2006)

According to Hidayati et al. (2006) the combined index number/value of several parameters is calculated using the following formula:

Student's Preparedness Level Index (K) =(0,83 x KA index) + (0,08 x EP Index) + (0,04 x WS Index)+(0,04 RMC Index) (2)

Teacher's Preparedness Level Index (K) =(0,71 x KA index) + (0,17 x EP Index) + (0,04 x WS Index)+(0,07 RMC Index) (3)

Maximum score of the parameter the data analysis technique from the observation sheet used quantitative descriptive analysis by classifying the type of data obtained from the observation sheet and grouped.

As for calculating the percentage, a simple formula proposed by Sudjana (2005) is used. The interpretation of the calculation results is shown in Table 2.

$$P = \left(\frac{f}{N}\right) \times 100\% \qquad (4)$$

Description:
P = Percentage of answers
f = Frequency of answer
N = Total frequency
100 % = fixed value kostanta

Table 2. The Interpretation of Result Responses

No	Responses (%)	Category
1	100	All
2	80-99	general
3	60-79	most
4	50-59	More than half
5	40-49	less than half
6	20-39	A small part
7	0-19	very little

Results and Discussion

The Special School, located at Jalan Kebun Raja, Ie masen Ulee Kareng, Banda Aceh City, is one of the official educational institutions to serve education for children with special needs to develop their attitudes, knowledge and behavior so that they can learn properly like normal children in general. The types of disabilities that exist in the Special School in Banda Aceh City are Visually Impaired, Deaf, Disabled, Hyperkinetic and Autistic. This Special School is part of the Bukesra foundation (Disabled Welfare Enterprise*)*, the foundation has 3 school levels, namely elementary, junior and senior high school levels, all three of which are schools for children with special needs. Figure 1 shows the map of the research location and Figure 2 shows the map of the Special School.

In this study, the respondents consisted of 64 respondents consisting of 52 students and 12 teachers at special school in Banda Aceh. The data obtained from the research results can provide useful results in solving a problem in research.

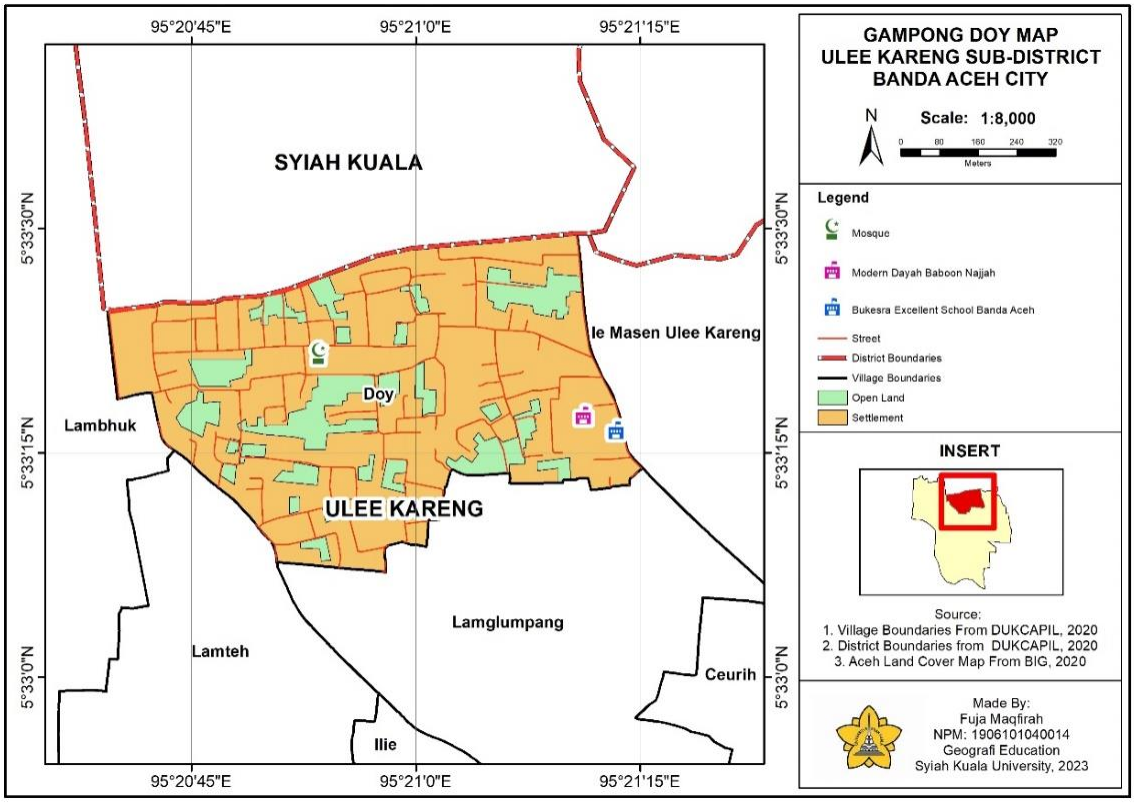

Figure 1. The research location

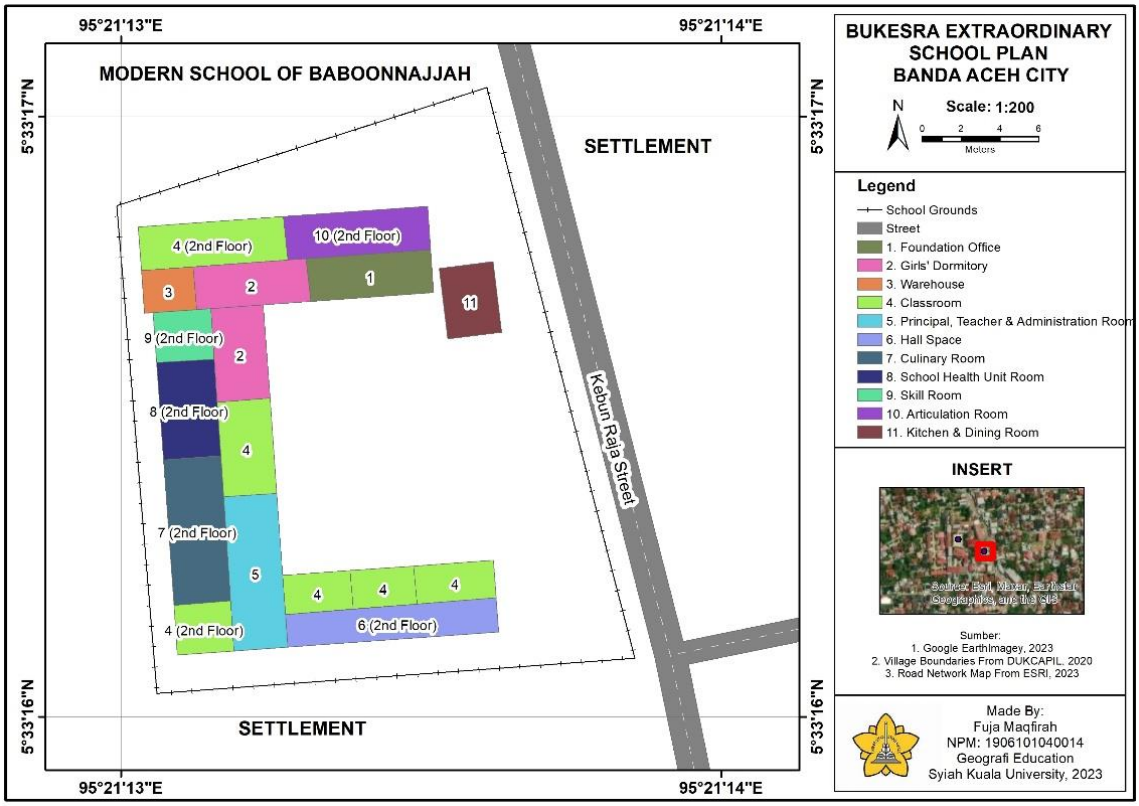

Figure 2. The map of Special School in Banda Aceh

Preparedness Level of Students in Facing Earthquake and Tsunami Disasters

In this study, the respondents consisted of 52 students at special school in Banda Aceh. The analysis conducted on disaster preparedness parameters aimed at knowing the index value of disaster preparedness parameters of special school Banda Aceh students against earthquake and tsunami disasters. The distribution of questionnaire answers can be seen in Table 3 below.

Table 3. Tabulation of Questionnaire Answers by Respondents based on the Disaster Preparedness Parameters Index

No	Parameters	Answers	
		Yes	No
A	Knowledge and behavior		
	1. I understand that earthquake and tsunami disasters are something that causes loss of life and material losses.	43	9
	2. Earthquakes can cause very strong shaking on the earth's surface.	45	7
	3. I know that if the sea water suddenly recedes, it is a sign of a tsunami.	33	19
	4. Do you think every earthquake can cause a tsunami?	30	22
	5. Have you learned about earthquakes and tsunamis at school?	36	16
	6. Earthquakes cannot be predicted when it will occur.	36	16
	Total scores	223	89
	7. When an earthquake occurs, did you immediately save yourself outside the room?	43	9
	8. Do you also rescue others who are more vulnerable during earthquakes?	39	13
	9. Can you minimize panic during an earthquake?	38	14
	10. Do you follow the earthquake escape procedures as directed by your teachers at school?	43	9
	11. Do you immediately take shelter under a table when an earthquake occurs indoors?	32	20
	12. Do you stay inside if you are in a high-rise building during an earthquake?	27	25
	Total scores	222	90
	The number of real parameter scores	445	179
	The maximum number of parameter scores	624	
	KA Index	71.31	
B	Emergency preparedness planning		
	1. Have you ever participated in disaster simulation/training at school?	30	22
	2. Is there an evacuation route map as a guide to rescue during an earthquake?	44	8
	3. Has the school ever informed you of the emergency response plan in the event of an earthquake?	41	11
	4. Is it better to save yourself than to save your possessions in the event of an earthquake and tsunami?	44	8
	5. Do you participate in providing first aid to victims during an earthquake disaster?	38	14
	6. Do you stay away from items or objects that are dangerous for self-rescue, such as electricity poles, during an earthquake?	43	9
	The number of real parameter scores	240	72
	The maximum number of parameter scores	312	
	EP Index	76.92	
C	Early warning systems		
	1. Does the school have a special siren to notify/warn students before an earthquake?	43	9
	2. Earthquake distress warnings must be delivered quickly and accurately.	45	7
	3. Have you ever participated in a disaster mitigation simulation conducted by the SAR team/disaster management agency?	27	25

No	Parameters	Answers	
		Yes	No
	4. Tsunami warning systems are obtained through traditional ways, local agreements and national tsunami warning systems.	43	9
	5. Information about earthquakes and tsunamis can be obtained through TV, mobile phones, seminars and warning signs.	45	7
	6. Earthquake disaster warning from the Meteorology, Climatology and Geophysics Agency	44	8
	The number of real parameter scores	247	65
	The maximum number of parameter scores	312	
	WS Index	79.16	
D	Resource mobilization		
	1. Does your school have a School Health Team, Youth Red Cross and Scouts?	50	2
	2. Is there anything in your school that directs rescue in the event of an earthquake?	49	3
	3. Have you been trained in earthquake disaster management?	31	21
	4. Did you receive a guidebook on earthquake preparedness?	17	35
	5. Is there a complete First Aid kit in your school?	50	2
	6. Does the school collect funds from parents to pay for the earthquake preparedness training?	12	40
	The number of real parameter scores	209	103
	The maximum number of parameter scores	312	
	RMC Index	66.98	

The level of preparedness of Special School Banda Aceh students in facing the possibility of a tsunami disaster can generally be reflected in the form of an index of the level of preparedness of school students. The index is a composite of 4 parameters, namely the knowledge and attitude index about disaster risk, the emergency response plan index, the disaster warning system index, and the resource mobilization index. Table 4 shows the preparedness level of Special School's students.

Table 4. Preparedness Level of Students of Special School Banda Aceh

Parameters	Number of respondents	Maximum score	Respondent's real score	Index	Category
Knowledge and attitude	52	624	445	71.31	ready
Emergency response plan	52	312	240	76.92	ready
Disaster warning system	52	312	247	79.16	ready
Resource mobilization	52	312	209	66.98	ready
Preparedness index				71	ready

The level of preparedness of special school students in facing a tsunami disaster is generally included in the ready category with an index value of 71. The knowledge and attitude parameter about disaster risk has an index of 71.31 in the ready category, the emergency response plan parameter has an index of 76.92 in the ready category, the disaster warning system parameter with a value of 79.16 is in the ready category with the highest index value of the four parameters and the resource mobilization parameter with the smallest value of 66.98 is in the ready category.

The results of the study found that the earthquake and tsunami disaster preparedness of students was in the category of ready preparedness (71). The special school in Banda Aceh has received training on disaster and simulation of the Aceh earthquake and tsunami held by the Aceh Disaster Management Agency (ADMA) and in

collaboration with the Disaster Risk Reduction Forum in 2022 to increase the level of preparedness of students in facing earthquake and tsunami disasters.

Preparedness Based on Knowledge and Attitude towards Disaster Risk Parameters

The results of the study obtained preparedness based on knowledge and attitudes towards disaster risk in Special School Banda Aceh students are in the ready category with a value of (71.31). Most students have received training and simulations on disaster and the Aceh earthquake and tsunami, so they already have knowledge about disaster risk and disaster preparedness. The knowledge possessed by an individual will influence their attitude and concern to be ready and alert in anticipating disasters (Hidayati et al., 2006).

Students who are in the blind and deaf classes have a good understanding of disaster preparedness compared to the classes of tuna, donw syndrome and autistic students. The knowledge of disaster risk possessed by students affects students' attitudes and actions in dealing with earthquake and tsunami disasters. The results of this study are supported by Zainatunnisa & Satria (2018) on earthquake and tsunami disaster preparedness in students who take part in disaster education conducted on 94 respondents found that student preparedness for earthquake and tsunami disasters based on knowledge and attitude parameters is in the very ready category (100%). Preparedness will be built if students have sufficient knowledge of disasters and will be reflected in behavior and actions when facing disasters.

Preparedness Based on Emergency Response Plan Parameters

The results showed that preparedness based on emergency response plans for students was in the ready category with a score of (76.92). The things measured in the parameters of the prepared emergency response plan are prepared steps in the form of plans and actions in dealing with earthquakes and tsunamis and places to save themselves. Students already know how to save themselves from dangerous objects when an earthquake occurs, and students already understand the direction of the evacuation map. The results of this study are supported by research by Zainatunnisa & Satria (2018) on earthquake and tsunami disaster preparedness in students who take part in disaster education conducted on 94 respondents found that student preparedness for earthquake and tsunami disasters based on emergency response parameters is in the very ready category (74.5%). Disaster emergency response plans are an important part of preparedness, especially regarding evacuation, rescue and rescue so that disaster victims can be minimized (Hidayati et al., 2006). According to (Nikkanen et al., 2024), there are several categories in regional preparedness for adaptive governance including collaboration & networks, nestedness & polycentricity, learning & experimentation, reflexivity, flexibility & adaptive capacity, therefore it is important to increase inclusiveness and develop multidisciplinarity in regional risk assessment can be a recommended action.

Preparedness Based on Disaster Warning System Parameters

The results showed that the preparedness of the disaster warning system for special school Banda Aceh students was in the ready category with a score of (79.16). Students know the existence of tsunami warnings both traditionally and national tsunami warnings (sirens). An early disaster warning system is a device that can quickly and accurately provide warning information to the community, so that it can draw the right conclusions to immediately move away or avoid the area that is the location of the disaster (Hamdan, 2017). The results of this study are supported by the results of Febriana et al. (2015) on the preparedness of disaster-prepared village communities in facing earthquake and tsunami disasters in Meuraxa sub-district, Banda Aceh City, which was conducted on 15 Aceh Disaster Management Agency employees and 45 village communities from Meuraxa

sub-district, the results showed that for ADMA employees of Banda Aceh City on the parameters of the disaster warning system in the good category 84% and the community in the good category 69% after receiving direction and guidance related to the disaster warning system by the Indonesian Red Cross (IRC). Students' preparations for the parameters of the disaster warning system in the ready category have an impact on students' ability to obtain information about disaster warnings to minimize the impact and victims of earthquake and tsunami disasters in schools.

Preparedness Based on Resource Mobilization Parameters

The results showed that resource mobilization preparedness of Special school Banda Aceh students was in the ready category with a value of (66.98). Resource mobilization parameters both human resources (HR), funding, and important infrastructure for emergencies are potentials that can support preparedness (Hamdan, 2017). Special school students are still many who have not received guidebooks on earthquake and tsunami disaster preparedness, and schools have not collected fees from parents of students to be able to work together in making training/simulation of special school students' preparedness in facing earthquake and tsunami disasters at school. The results of this study are supported by research by Zainatunnisa & Satria (2018) earthquake and tsunami disaster preparedness in students who participated in disaster education conducted on 94 respondents found that student preparedness for earthquake and tsunami disasters based on resource mobilization parameters was in the very ready category (69.1%). Not only in terms of material, the presence of schools in the community can also provide more value in efforts to improve disaster preparedness by increasing cooperation involving government/non-government institutions engaged in disaster risk reduction (Kaharuddin, 2015). Special School can further maximize cooperation with the community around the school and parents in improving student preparedness.

Preparedness Level of Special School Teachers in Facing Earthquake and Tsunami Disasters

Respondents in this study consisted of 12 teachers at special school Banda Aceh. The analysis conducted on disaster preparedness parameters aimed at knowing the index value of disaster preparedness parameters of Banda Aceh teachers against earthquake and tsunami disasters. The distribution of questionnaire answers can be seen in Table 5.

Table 5. Tabulation of Questionnaire Answers by Respondents based on the Disaster Preparedness Parameters Index

No	Parameters	Answers	
		Yes	No
A	Knowledge and behavior		
	1. Do earthquakes occur due to shifts in the earth's crust?	12	0
	2. It is impossible to predict when an earthquake will occur.	12	0
	3. I know that if the sea water suddenly recedes, it is a sign of a tsunami.	10	2
	4. Do you think every earthquake can cause a tsunami?	12	0
	5. I know how to rescue myself from earthquake and tsunami disasters.	12	0
	Total scores	58	2
	6. Are you running away from the sea in case the tide suddenly recedes?	11	1
	7. Do you also rescue others who are more vulnerable during earthquakes?	11	1
	8. Can you minimize panic during an earthquake?	10	2
	9. Do you immediately head to an open field during an earthquake?	12	0
	10. Not leaving the classroom or any room until the earthquake is over	8	4
	Total scores	52	8
	The number of real parameter scores	110	10
	The maximum number of parameter scores	120	

No	Parameters	Answers	
		Yes	No
	KA Index	91.66	
B	Emergency preparedness planning		
	1. Is there an evacuation route map as a guide to rescue during an earthquake?	11	1
	2. Have you trained students to save themselves in anticipation of earthquakes and tsunamis?	11	1
	3. Is it better to save yourself than to save your possessions in the event of an earthquake and tsunami?	10	2
	4. The teacher guides the students out of the room/building in an orderly manner without crowding.	12	0
	5. The teacher guides the students to bend down towards the door while protecting their heads.	12	0
	The number of real parameter scores	56	4
	The maximum number of parameter scores	60	
	EP Index	93.33	
C	Early warning systems		
	1. Does the school have a special siren to notify/warn students in advance of an earthquake?	12	0
	2. Earthquake distress warnings must be delivered quickly and accurately.	12	0
	3. Tsunami warning systems are obtained through traditional ways, local agreements and national tsunami warning systems.	12	0
	4. Information about earthquakes and tsunamis can be obtained through TV, mobile phones, seminars and warning signs.	12	0
	5. When a disaster warning is heard, the teacher guides students to the evacuation center.	12	0
	The number of real parameter scores	60	0
	The maximum number of parameter scores	60	
	WS Index	100	
D	Resource mobilization		
	1. Teachers have attended training and seminars on disaster knowledge	11	1
	2. Have you ever participated in earthquake and tsunami disaster preparedness simulations?	11	1
	3. Is there a complete First Aid kit in your school?	10	2
	4. Do teachers inform the community/students about disaster preparedness?	11	1
	5. Is there an officer/group in this school related to disaster preparedness?	11	1
	The number of real parameter scores	54	6
	The maximum number of parameter scores	60	
	RMC Index	90	

The overall level of preparedness of Special School Banda Aceh teachers is 92 that the calculation shows in the Table 6. This is supported by teachers who have received training and simulations about disasters from the Aceh Disaster Management Agency (ADMA) and the Disaster Risk Reduction Forum and their background as educators who already have the knowledge and ability to provide specific, clear and easy-to-understand instructions to students about disasters adding to the value of teacher preparedness in facing earthquake and tsunami disasters.

Table 6. Preparedness Level of Special School Banda Aceh Teachers

Parameters	Number of respondents	Maximum score	Respondent's real score	Index	Category
Knowledge and attitude	12	120	110	91.66	Very ready
Emergency response plan	12	60	56	93.33	Very ready
Disaster warning system	12	60	60	100	Very ready
Resource mobilization	12	60	54	90	Very ready
Preparedness index				92	Very Ready

Disaster preparedness is a condition of a community both individually and in groups that have physical and psychological abilities in dealing with disasters (Indriasari & Kusuma, 2019). The higher the physical and psychological abilities possessed by teachers, the higher the level of teacher preparedness in facing earthquake and tsunami disasters. The results showed that the earthquake and tsunami disaster preparedness of teachers at special school Banda Aceh was in the category of very ready preparedness (92). Teachers also participated in simulations/training on disaster preparedness organized by the Aceh Disaster Management Agency and in collaboration with the Disaster Risk Reduction Forum in 2022 to increase the level of preparedness of special school Banda Aceh teachers in facing earthquake and tsunami disasters. The results of research by Gokmenoglu et al. (2021)found that teachers' awareness increased, and their perspective changed after disaster training, they believed more in the importance of preventive measures and hazard hunts characterized by increased awareness, attention, motivation, feelings of readiness, awareness, point of view, confidence, and belief.

Preparedness Based on Knowledge and Attitude towards Disaster Risk Parameters

The results of the study found that preparedness based on knowledge and attitudes towards disaster risk in Special school teachers were in the very ready category with a value of (91.66). The knowledge possessed affects the attitude and concern of the community to be ready and alert in anticipating disasters (Hamdan, 2017). Almost all teachers have sufficient knowledge about disaster risk.The results of this study are supported by the results of Dwiyanti et al. (2022) on the description of earthquake disaster preparedness in special school teachers conducted on 37 teachers in special schools obtained results based on knowledge and attitude parameters in the ready category (100%) this is influenced by educational factors, history of experiencing disasters and disaster training received. Knowledge is the main factor and the key to preparedness. The knowledge possessed affects the attitude and concern of the community to be ready and alert in anticipating disaster (Hamdan, 2017). By attending disaster training, a teacher already has knowledge about disaster preparedness so that the teacher's knowledge and attitude in disaster preparedness are in the very ready category.

Preparedness Based on Emergency Response Plan Parameters

The results of the study found that preparedness based on emergency response plans to disasters in teachers were in the very ready category with a value of (93.33). The readiness of emergency response plans in schools is indicated by several things, namely, rescue and evacuation plans and first aid, provision or security of basic school needs, provision of evacuation equipment, and evacuation drills/simulations (IIS-UNESCO/ISDR). The results of this study are supported by the results of Dwiyanti et al. (2022) on the description of earthquake and tsunami disaster preparedness in special schoolteachers

conducted on 37 Cileunyi State Special School teachers, the results based on the parameters of the emergency response plan are in the ready category (78.3%) this is influenced by educational factors, history of experiencing disasters and disaster training received. The ability of teachers to provide specific, clear, and easy-to-understand instructions is a very important factor in guiding children with disabilities to evacuate themselves (Dwiyanti et al., 2022).Most teachers have understood how to save themselves and students at school in the event of an earthquake and tsunami disaster, teachers also understand how to direct special school students to be able to save themselves during an earthquake.

Preparedness Based on Disaster Warning System Parameters

The results showed that preparedness based on the disaster warning system for teachers was in the very ready category with a value of (100) the highest value of other parameters. Disaster warning is an early warning sign that is useful for the distribution of disaster-related information (Dwiyanti et al., 2022). The results of this study are supported by research by Zainatunnisa & Satria (2018) on earthquake and tsunami disaster preparedness in students who take part in disaster education conducted on 94 respondents found that student preparedness for earthquake and tsunami disasters based on disaster warning system parameters is in the very ready category (59.8%).In the school environment, when teachers' knowledge of disaster warning signs is high, disaster response actions will be easy to carry out quickly and responsively. This can accelerate the process of saving oneself, children and others at school and the surrounding environment. The availability of sufficient disaster warning facilities in schools also makes the rescue process more effective.

Preparedness Based on Resource Mobilization Parameters

The results showed that preparedness based on the disaster warning system for teachers was in the very ready category with a value of (90), this parameter was the smallest value of the other parameter indices. Resource mobilization parameters both human resources (HR), funding, and important infrastructure for emergencies are potentials that can support preparedness (Hamdan, 2017). Most special schoolteachers have a good understanding of the facilities and infrastructure needed in preparedness, one of which is knowing the availability of first aid kits at school, teachers have also informed students and the community about knowledge about preparedness in the face of earthquake and tsunami disasters, and teachers also have experience and have participated in earthquake and tsunami disaster preparedness simulations.

Teachers are one of the actors expected to spread knowledge about disasters not only to students but also to the community. Teachers' resource mobilization is measured based on 2 (two) indicators, namely teachers' participation in training activities, workshops, and seminars both concerning knowledge about disasters, disaster emergency plans, early warning systems and teachers' participation in disseminating knowledge about disaster preparedness to the community. The more teachers who participate in these activities are expected to increase preparedness in anticipating natural disasters, especially earthquake and tsunami disasters (Hidayati et al., 2006).

The results of this study are also supported by Madona (2021) on individual preparedness for earthquake disasters in the Education and Training Center of the Meteorology, Climatology and Geophysics Agency (MCGA) conducted on 18 respondents, it was found that the results of individual preparedness for earthquake disasters based on resource mobilization parameters were in the very ready category (50%), this is based on their work background as MCGA employees who already have adequate knowledge and skills regarding earthquakes. Based on theory and research results, it can be concluded that the ability of teachers to provide explanations in front of the class will be very useful

in conveying information about disaster preparedness with this can increase the preparedness of teachers in facing earthquake and tsunami disasters based on resource mobilization parameters in the very ready category (90).

The guidelines outline the objectives of the drill, the logistics, how to identify potential hazards in the classroom, and sheltering and evacuation protocols during and after earthquakes. In addition, the guidelines emphasize the importance of the teacher's roles in guiding their students through the drills as a learning process (Hosseini & Izadkhah, 2020). Disaster education programs should include the training of teachers to work with children to understand, or even co-create maps of their local hazards and high-risk areas, with a discussion about ways of reducing hazard impacts and improving community resilience (Yildiz et al., 2020).

Special School Facilities in Earthquake and Tsunami Disaster Preparedness

The overall disaster preparedness facilities at special school in Banda Aceh are ready, for laboratorium the school only relies on the skills room and hall for training and providing material on disaster by teachers. In the future, schools can work with related agencies to be able to create a location for evacuation closest to the school and schools can also work with hospitals to train students on handling/rescue in the event of injuries and emergencies to make students as little doctors. The existence of supporting facilities and infrastructure such as school buildings with disaster safe school standards, school regulations/policies or standard operating procedures regarding disaster preparedness of disaster resilient communities. preparedness in terms of facilities is presented in Table 7.

Table 7. Results of Observation Questionnaire of School Preparedness Facilities Special School in Banda Aceh towads Earthquake and Tsunami Disasters

No	Tool/Facility Name	whereabouts		Description
		Available	Unavailable	
1	School health post (UKS)	√		
3	Little doctor		√	-
4	Doors equipped with EXIT instructions	√		-
5	Has evacuation route signs and signage	√		-
6	Evacuation/rescue equipment and supplies	√		-
7	Has a hazard warning system	√		-
8	Has emergency lighting	√		-
9	Maps and evacuation/rescue routes	√		-
10	Disaster wallpaper and posters	√		-
11	Important phone numbers that are easily accessible to all school components (ex: hospital, police)	√		-
12	Has an emergency/safety ladder	√		-
13	Has a gathering place during a disaster (open field)	√		-
14	Disaster lab/disaster training		√	-
15	The nearest evacuation/shelter location to the school (ex: Escape building)		√	-
16	Emergency stairs are equipped with fireproof doors	√		-

Based on the calculations, it can be concluded that the facilities of special school in Banda Aceh is 81.25% already have preparedness in the face of earthquake and tsunami disasters. The following is an explanation of earthquake and tsunami disaster preparedness at Special School in Banda Aceh. In general, the facilities already have preparedness in the face of earthquake and tsunami disasters. Judging from the results of observations, there are 13 types of earthquake and tsunami disaster preparedness facilities available at special school, namely the school health post, first aid kits and essential medicines are available in the school health post room and also the teacher's office room, the door is equipped with EXIT instructions, has evacuation route signs and signs on every room door and wall, evacuation/rescue equipment and equipment such as stretchers and so on, has a hazard warning system tool such as a serenade and bell and hand-held loudspeakers, have emergency lighting such as flashlights and others, there are maps and evacuation/rescue routes posted on the wall for all school residents to see, there are magazines and disaster posters posted on the classroom walls, there are important telephone numbers that are easily accessible to all school components such as police, hospital and fire department numbers, have emergency stairs, there is also a gathering point in the event of a disaster in the school yard, and there are also emergency stairs equipped with fireproof doors.

The results of this study are supported by (Satria, 2018) on Facilities and infrastructure supporting school disaster preparedness conducted in 9 schools, the results of preparedness in terms of school facilities and infrastructure are ready (100%) this is because schools in Meuraxa sub-district are schools that have experienced earthquake disasters and have adequate facilities available. Safe School Facilities are school facilities with buildings, contents and surrounding grounds that meet the requirements of safety, health, convenience including eligibility for children with special needs, comfort and security (Suharwoto et al., 2015). Schools should include earthquake education in their education programs for IwASD and their parents for earthquake preparedness (Aslan, 2024).

Conclusion

The conclusion of this study is that the level of preparedness of students, teachers and facilities at special schools in facing earthquake and tsunami disasters assessed from several parameters such as knowledge and attitudes about disaster risk, emergency response plans, disaster warning systems, and resource mobilization is in the ready category. Nevertheless, there is a need for socialization, simulations and training for students and teachers to increase their capacity to deal with disasters that cannot be predicted when they occur because people with disabilities are the most vulnerable group.

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