Comparative Analysis Of Student Preparedness For Merapi Eruption: A Case Study Of SMAN 1 Cangkringan And SMAN 1 Pakem As Sister Schools

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ABSTRAK

Program *sister school* didirikan sebagai bagian dari upaya peningkatan kesiapsiagaan bencana di lingkungan pendidikan. Penelitian ini bertujuan untuk menentukan kesiapsiagaan siswa dan mengidentifikasi perbedaan kesiapsiagaan antara dua sekolah "*sister school*", yaitu SMAN 1 Cangkringan dan SMAN 1 Pakem. SMAN 1 Cangkringan sangat terdampak selama bencana letusan besar Gunung Merapi pada tahun 2010, yang mengakibatkan harus dilakukan evakuasi sekitar 95% siswa dan kerusakan tempat tinggal siswa mencapai 30% rumah, serta mengakibatkan kematian sejumlah 5 orang di antara keluarga siswa SMAN 1 Cangkringan. Penilaian kesiapsiagaan kedua sekolah ini menggunakan empat indikator yaitu pengetahuan, rencana tanggap darurat, peringatan dini bencana, dan mobilisasi sumber daya. Populasi dalam penelitian ini terdiri dari 101 responden dari kelas XI IPS, yang terdiri dari 50 siswa dari SMAN 1 Cangrkingan dan 51 siswa dari SMAN 1 Pakem. Jenis penelitian ini adalah penelitian kuantitatif dengan desain komparatif. Penelitian ini menggunakan data kuesioner dan menghasilkan temuan berupa: siswa di SMAN 1 Cangkringan memiliki skor indeks kesiapsiagaan sebesar 82,75, yang masuk ke dalam kategori sangat siap. Sementara, siswa di SMAN 1 Pakem memiliki skor indeks kesiapsiagaan sebesar 70,85, yang masuk ke dalam kategori siap. Berdasarkan analisis data menggunakan uji Mann Whitney, ditemukan bahwa nilai Asymp. Sig. (2-tailed) adalah 0.001, karena nilai p kurang dari 0.05 ($p = 0.001$), yang berarti ada perbedaan signifikan dalam kesiapan siswa. Hasil penelitian menunjukkan bahwa SMAN 1 Cangkringan memiliki kesiapan yang lebih baik dibandingkan dengan SMAN 1 Pakem, karena nilai rata-rata peringkat SMAN 1 Cangkringan lebih tinggi yaitu 60,77, sedangkan nilai rata-rata peringkat SMAN 1 Pakem adalah 41,03.

Keywords: Kesiapsiagaan Siswa, *Sister School*, Erupsi, Gunung Merapi

ABSTRACT

The Sister School Program was established as part of efforts to enhance disaster preparedness in the educational environment. This research aims to determine the preparedness of students and to identify the differences in preparedness between two schools that are sister schools, namely SMAN 1 Cangkringan and SMAN 1 Pakem. SMAN 1 Cangkringan was significantly affected during the major eruption disaster of Merapi Mountain in 2010, resulting in the evacuation of roughly 95% of students, damage to 30% of residences, and 5 fatalities among the families of students from SMAN 1 Cangkringan. The assessment of the preparedness of both schools employs four criteria: knowledge, emergency response plans, disaster alerts, and resource mobilization. The population in this study consists of 101 respondents from class XI IPS, comprising 50 students from SMAN 1 Cangrkingan and 51 students from SMAN 1 Pakem. Using a quantitative research type with a comparative design. The research utilized questionnaire data and yielded the following findings: 1) Students in SMAN 1 Cangkringan have a preparedness

index score of 82.75, which falls into the very ready category. Meanwhile, 2) Students in SMAN 1 Pakem have a preparedness index score of 70.85, which falls into the ready category. 3) Based on the data analysis using the Mann Whitney test, it was found that the Asymp. Sig. (2-tailed) value is 0.001, because the p-value is less than 0.05 (p = 0.001), which means there is a significant difference in student preparedness. The research results indicate that SMAN 1 Cangkringan has better preparedness compared to SMAN 1 Pakem, as the mean rank value of SMAN 1 Cangkringan is higher at 60.77, while the mean rank value of SMAN 1 Pakem is 41,03.

Keywords: Student Preparedness, Sister School, Eruption, Merapi Mountain

INTRODUCTION

Indonesia is one of the countries referred to as the "Country of a Thousand Disasters." due to its high potential for natural disasters. Geologically, Indonesia is located at the convergence of the Eurasian, Indo-Australian, and Pacific tectonic plates. The Pacific Ring of Fire is the name given to the movement of those tectonic plates (Astuti, 2020). The Ring of Fire is a global chain of volcanoes that surrounds the Pacific and Mediterranean Oceans, resulting in the formation of volcanoes in Sumatra, Java, and Nusa Tenggara (Samudra 2024, Idham 2019, Ibrahim 2005). This condition makes Indonesia vulnerable to geological disasters such as volcanic eruptions, earthquakes, and tsunamis. Approximately 2,126 disaster events are estimated to have occurred in 2022, The National Disaster Management Agency (BNPB) provides Disaster Data and Information of Indonesia (DIBI). One of such risks is the possibility of a volcanic eruption. In the last ten years, there have been 143 volcanic eruptions, with Mount Merapi's eruption in 2010 being among the five most catastrophic.

According to data from the BNPB report on December 5, 2010, the Merapi eruption at the time resulted in 350 fatalities and 240 hospitalized victims, with a total of 47,486 evacuees spread across 299 evacuation points in the regions of Semarang, Temanggung, Magelang City, Boyolali, Klaten,Gunung Kidul, Yogyakarta, Kulonprogo, Sleman, Bantul,

and Magelang Regency. The eruption of Mount Merapi in 2006 and 2010 also experienced a change in the direction of the hot ash clouds, which headed towards the southern slopes of Mount Merapi where this had never happened before since 1961 (Schwartz-Marin et al, 2022, Subandriyo, 2012). According to the Regional Regulation of the Special Region of Yogyakarta (PERDA DIY) Number 13 of 2015 Article 21 Paragraph (1), educational institutions can assist in disaster management based on each institution's capacity. In addition, one of the sectors that is concentrated on vulnerable groups is children (Amri et al, 2018, Kuran et al., 2020, Putri, 2022). A significant number of schools are situated in disaster-prone regions, where students predominantly spend their time (Hafida, 2021). Based on information gathered by the National Disaster Management Agency (BNPB), there are 1,685 educational facilities located in Volcanic Eruption Disaster-Prone Areas (KRB). There are 54,080 people at high and medium risk of being affected by disasters.

The Sister School Program was established as part of efforts to enhance disaster preparedness in the educational environment by the Regional Disaster Management Agency (BPBD) of Sleman Regency. 20 schools in Sleman Regency that are part of the Paseduluran school system were developed in 2015. The schools are comprised of 10 schools that have been impacted by the Mount Merapi eruption and another 10 schools that serve

as receiving or supporting schools, which are described in Table 1 (Sabilussalami, 2017). One of the schools in the Paseduluran (sister school) program, SMAN 1 Cangkringan, is located 4-6 kilometers from the summit of Mount Merapi on Jl. Merapi Golf Bedoyo in Wukisari Village, Cangkringan District. This school is vulnerable to the impacts of hot clouds, lahars, falling rocks (pyroclasts), and toxic gases because it is located in a Disaster-Prone Area (KRB) III. (Wicaksono, 2022). Thus, there is a significant threat of an eruption disaster from Merapi.

Table 1. Sister School in Sleman

The affected school	The supported school
SMK Muhammadiyah Pakem	SMK Muhammadiyah 1 Sleman
SMAN 1 Cangkringan	SMAN 1 Pakem
SDN Banyu Urip 1 Turi	SDN Turi 3
SD Muhammadiyah Cepitsari	SDN Kejambon 2 Ngemplak
SDN Kloposawit Turi	SMP 1 Turi
SMP Taman Dewasa	SMK 1 Cangkringan
SD Muhammadiyah Balerante	SDN Klegung 2 Tempel
SDN Glagaharjo Cangkringan	SDN Bronggang Cangkringan
SDN Gungang Cangkringan	SDN Umbulwidodo Ngemplak

Source: Sabilussalami (2017)

According to the presentation by the principal of SMAN 1 Cangkringan in Chumairoh (2010), the impact of the Merapi eruption in 2010 caused nearly 95% of students to evacuate, 30% of houses to be damaged, and 5 fatalities, which were family members of students from SMAN 1 Cangkringan. Meanwhile, SMAN 1 Pakem is a partner school for SMAN 1 Cangkringan. Located on Jl. Kaliurang, Gambiran, Pakembinangun, Pakem District, Sleman Regency. SMAN 1 Cangkringan and SMAN 1 Pakem are both located in KRB III, which is a disaster-prone area III that is frequently affected by hot clouds, incandescent lava flows (falling/throwing incandescent material), and toxic gas, covering three regions (Saryanto, 2021).

The goal of disaster preparedness is to reduce future loss of life, property damage, and community disruptions. (Sina et al, 2018, Hoffmann & Muttarak, 2017, Susilowati 2016) Disaster preparedness is carried out by anticipating the possibility of a disaster occurring. If disaster management is to be effective, preparation must be ingrained in the culture of the community and local knowledge. Especially the communities located in disaster-prone areas. Preparedness should also be introduced from the beginning in the education system in schools. Just as students understand prevention, preparedness, and mitigation in response to disaster threats. Disaster preparedness is very important in schools, especially in those located in Disaster-Prone Areas (KRB) I, II, or III. This is necessary for students as a preparation for efforts to reduce disaster riskAccording Yusuf et al. (2022) as a disaster-prone area, strengthening disaster mitigation in the education sector must always be carried out by the Sleman Regency government. Furthermore, the concept of Sister Schools (*Sekolah Paseduluran*) entails several agreements between the affected schools and the supporting schools, including the organization of classroom learning, the use of facilities and infrastructure, and the student evacuation process.

RESEARCH METHOD

This research was conducted in two schools located in Sleman Regency, in Cangkringan District and Pakem District, both of which are in KRB III, an area at risk of Mount Merapi eruption disasters. The location map of the two schools is shown in the maps (Figure 1 and 2).

This quantitative research, with a comparative design, involves the completion of questionnaires by students from SMAN 1 Cangkringan and SMAN 1 Pakem. Quantitative research is a type of research that aims to test a hypothesis.
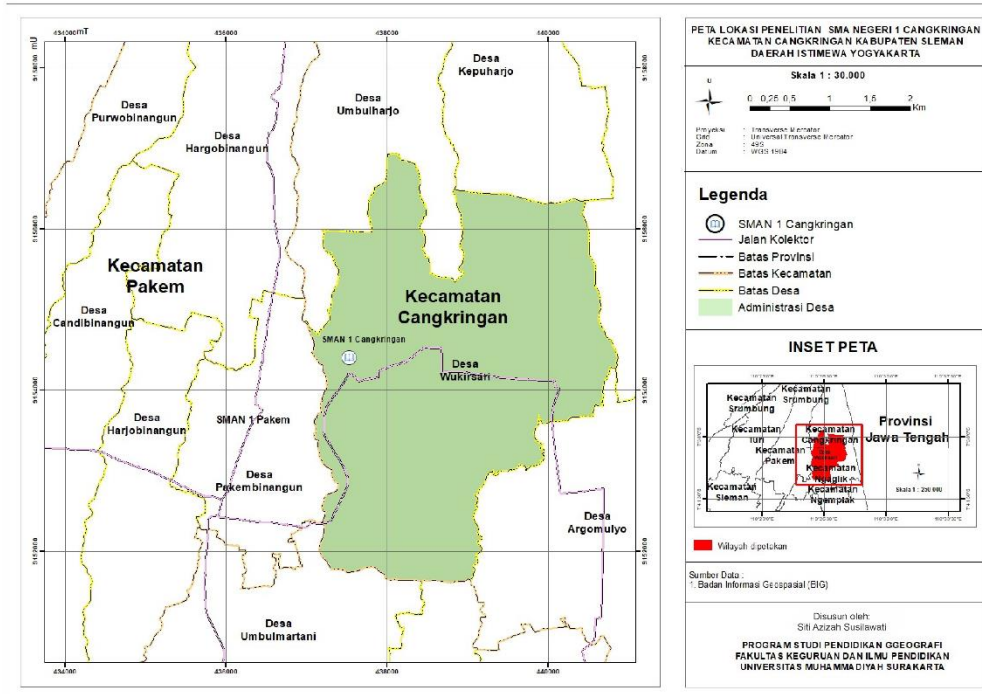

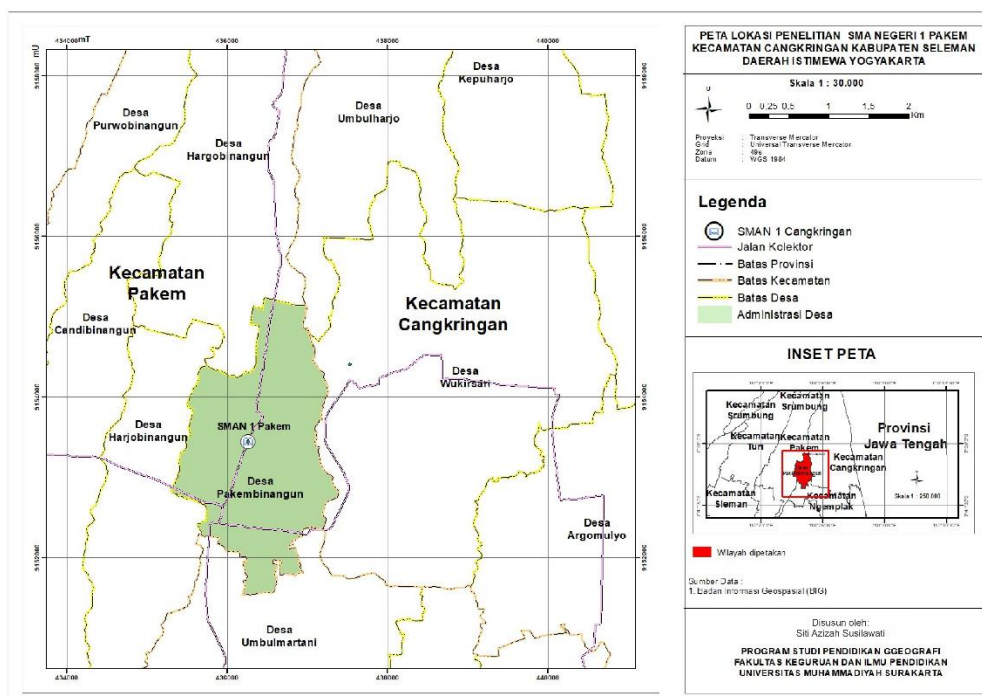**Figure 1**. Location Map of SMAN 1 Cangkringan

Figure 2. Location Map of SMAN 1 Pakem

Meanwhile, the comparative research technique is used to test one or more variables on two or more different samples (Sugiyono, 2015). The study population comprises all XI IPS class students, totaling 136 individuals, with 67 students from SMAN 1 Cangkringan and 69 students from SMAN 1 Pakem (Tabel 2).

Table 2. Research Population

School	Class	Students
SMAN 1 Cangkringan	XI IPS 1	33
	XI IPS 2	34
SMAN 1 Pakem	XI IPS 1	34
	XI IPS 2	35
Number of Students		**136**

This method is carried out through random sampling, allowing the population the opportunity to become part of the research sample (Sharma, 2017; Dharma, 2012). The determination of the sample was calculated using the Slovin formula at a significance level of 5, resulting in 50 students from SMAN 1 Cangkringan and 51 students from SMAN 1 Pakem, who conducted the sampling using the proportional random sampling technique. The data collection techniques in this study were conducted through observation, interviews, documentation, and the use of questionnaires as research instruments developed by LIPI/UNESCO/ISDR (2006) regarding the Guidelines for Measuring Community and School Readiness based on four disaster preparedness parameters: knowledge, emergency response plans, disaster warnings, and resource mobilization. The data analysis technique used is non-parametric statistical testing with Mann Whitney to determine the differences in data originating from two independent groups (different or unpaired groups) (Perme & Manevski, 2019, Qolbi, 2014). Meanwhile, to determine the index value of each parameter, the following Formula 1.

$$\text{Index} : \frac{number\ of\ parameter\ real\ score}{Parameter\ maximum\ score} \times 100$$
(1)

Thus, the results obtained can be categorized as high, medium, or low preparedness. The categories of student disaster preparedness are as follows Tabel 3.

Table 3. Categories of Student Preparedness Levels in Schools

Index Value	Preparedness Index
80-100	Very ready
65-79	Ready
55-64	Ready enough
40-54	Not ready
<40 (0-39)	Not ready

Source: LIPI – UNESCO/ISDR, 2006

RESULT AND DISCUSSION

This research aims to identify student preparedness and determine the differences in preparedness of eruption between buffer schools and affected schools.

1. The level of preparedness of students at SMAN 1 Cangkringan as a school affected by the eruption of Mount Merapi.

The assessment of student preparedness at SMAN 1 Cangkringan, an impacted institution, indicates a high level of preparedness, as outlined in the subsequent Table 4:

Table 4 Student Preparedness Scores in Affected Schools

Preparedness Parameter	Score	Catagory
Knowledge	91,0	Very ready
Emergency Response Plan	81,0	Very ready
Disaster Warning	81,5	Very ready
Resource Mobilization	77,5	Ready
Total	**82,75**	**Very ready**

Table 4 shows that the level of preparedness of students in affected schools falls into the "Very Ready" category with a score of 82.75, based on 50 respondents surveyed. All three fall into the category of very prepared in terms of knowledge about disasters, emergency response plans, and disaster warnings. The scores for disaster knowledge are 91.0, emergency response plans 81.0, and disaster warnings 81.5. Meanwhile, with a score of 77.5, resource mobilization falls into the prepared category. This aligns with the findings of Ramadhan's 2019 research. This research shows that the level of community preparedness in Galudra Village for the eruption of Mount Gede has an average preparedness level of very ready at 52%, while ready accounts for 28%, less ready is at 8%, and the remaining 4% are not prepared. The high level of preparedness is due to the government's role in providing information about the dangers posed by the eruption of Mount Gede explains the high level of preparedness. The community is making efforts to prepare evacuation tools, shelters, plans for evacuating belongings, and groups that are vulnerable to disasters.
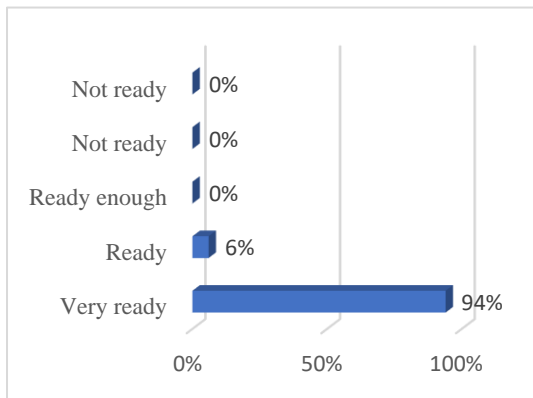

Figure 3. Knowledge Indicators of SMAN 1 Cangkringan

In terms of knowledge, around 91.0% of students at SMAN 1 Cangkringan have a very high level of preparedness regarding disasters. Students'

awareness of preparedness can be enhanced through a good understanding of disasters. (Febrianto, 2023). Based on the percentage of knowledge indicators, 94%, or 39 students, have a good understanding of eruption disasters (Figure 3). Students learn about natural events that cause disasters through education at school and through print and electronic media (TV/internet). In contrast, 6.0% of students know how to handle disasters. Meanwhile, schools have added disaster-related information to the lesson plan (RPP) as part of the learning material.
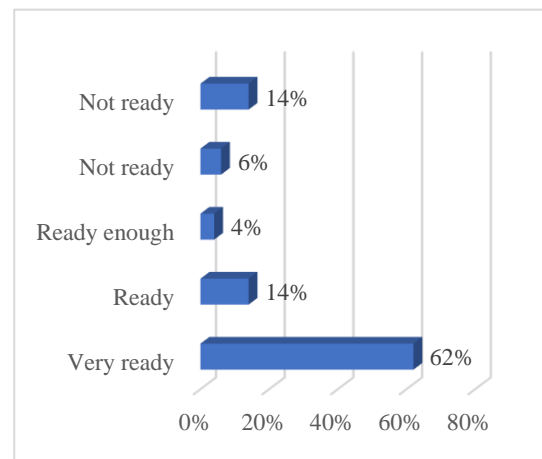

Figure 4. Emergency Response Indicators of SMAN 1 Cangkringan

The emergency response plan parameter has a very high level of disaster readiness, with a score of 81.0. This is supported by 62%, or 31 students, who stated they are very prepared in the event of a disaster; the students understand what needs to be done to minimize the impact of the disaster (Figure 4).

The disaster warning parameter has a very high level of disaster readiness, with a score of 81.5. This is supported by 44%, or 22 students, who stated they are very prepared because they recognize the signs for volcanic eruption warnings, such as traditional drums, bells, gongs, or sirens present in their school (Figure 5).
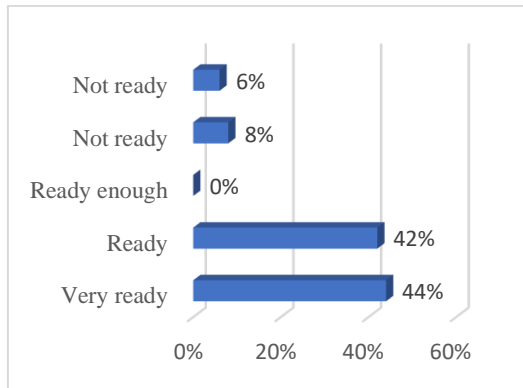
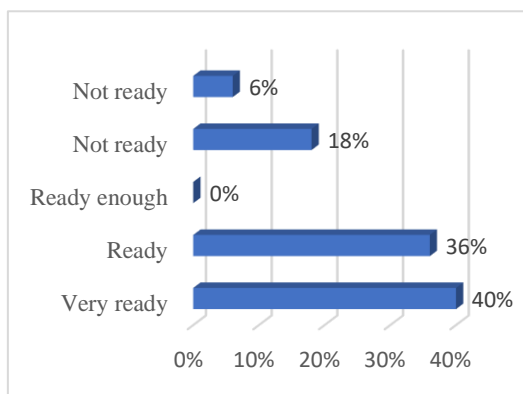**Figure 5**. Disaster Warning Indicator of SMAN 1 Cangkringan

Figure 6. Indicator of Resource Mobilization at SMAN 1 Cangkringan

The resource mobilization parameter has a readiness level of 77.5. Overall, the resource mobilization score has a lower index compared to the other parameters. Because only 40% of the 50 students are very prepared to participate in training activities and evacuation simulations, as well as socialization about disasters, and 36% of the students share that knowledge and those skills with their families and neighbors where they live. This indicates that the mobilization of resources has been quite good in supporting preparedness efforts in the school environment. Because preparedness must be accompanied by action and also supported by all existing elements, including infrastructure, policies, planning, and resource mobilization. (Susilawati, 2016). This aligns with Roswanto's (2022) research on

"Implementation of Preparedness for Schools in Disaster-Prone Areas (KRB)," which states that high levels of preparedness can foster a sense of safety and confidence among students in schools affected by the eruption of Mount Merapi located in KRB II and III.

2. The difference in the level of preparedness of students from SMAN 1 Cangkringan and SMAN 1 Pakem in facing the eruption disaster of Mount Merapi.

Based on Table 5 that out of 51 respondents studied, the level of preparedness of students in disaster buffer schools for the eruption of Mount Merapi is categorized as ready, indicated by an average score of 70.85 across four parameters. The parameter of knowledge about disasters is classified as very ready with a score of 84.5. The emergency response plan parameter is categorized as less ready with a score of 66.5. Meanwhile, the disaster warning and resource mobilization parameters have scores of 72.1 and 60.3, respectively. This is in line with the research conducted by Chumairoh in 2017 regarding "Students' Preparedness for the Eruption of Mount Merapi."

Table 5. Student Preparedness Scores in Buffer Schools

Preparedness Parameter	Score	Catagory
Knowledge	84,5	Very ready
Emergency Response Plan	66,5	Ready
Disaster Warning	72,1	Ready
Resource Mobilization	60,3	Ready enough
Total	**70,85**	**Ready**

According to the study, students' preparedness cannot be considered adequate in facing Mount Merapi's eruption disaster, as there are still some respondents (19.2%) who fall into the category of being sufficiently prepared.

This is not due to the students' knowledge, but rather their low participation in counseling and training activities. In addition, the preparedness of students at SMAN 1 Pakem as a school affected by the eruption of Mount Merapi is in line with the research conducted by Rahmawati (2016). The research shows that the level of preparedness among students at SMP Negeri 2 Imogiri is "ready" for earthquake disasters. The high level of preparedness is attributed to the disaster preparedness program integrated into the learning curriculum.
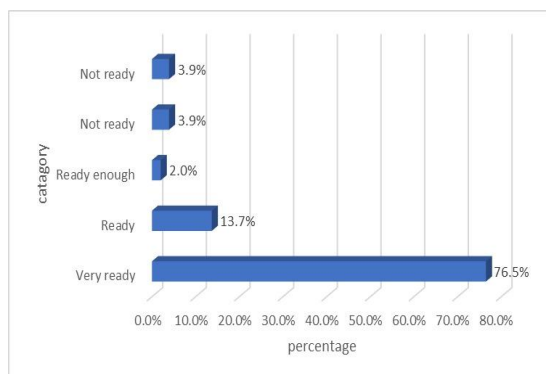

Figure 7. Indicator of Knowledge at SMAN 1 Pakem

According to the results of the data analysis conducted by the researchers, it shows that out of the four disaster preparedness parameters for students at SMAN 1 Pakem, the knowledge and attitude parameter has the highest index value of 84.5% (Figure 7), which falls into the very ready category. According to Deny Hidayati in 2006, in her research on "Community Preparedness in Anticipating Disasters," she states that knowledge of disasters is a fundamental component that shapes students' preparedness. Based on that reference, it can be concluded in this study that students' knowledge is at a very prepared level. This means that many students have understood the knowledge about volcanic eruption disasters. So that they are capable of facing disaster threats in the school environment.
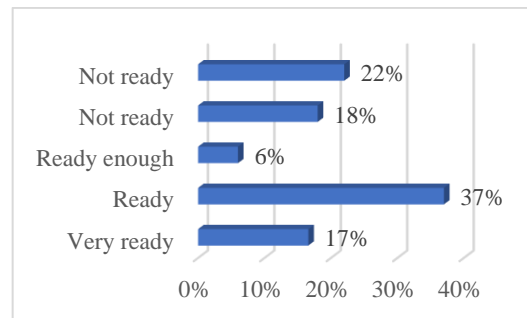

Figure 8. Emergency Response Plan Indicators for SMAN 1 Pakem

In the emergency response plan parameters, the readiness category scored (66.5). This is supported by 37.3%, or 19 students, who stated they are prepared because they have participated in self-rescue training and know the evacuation sites, as a form of preparation before a disaster occurs. Meanwhile, 21.6%, or 11 students, are not prepared because they did not participate in the training and are unaware of the school's disaster preparedness group (Figure 8). This result is in line with the research. (Ardiansyah, 2017). The level of the early warning system parameters regarding the preparedness of teachers at SMAN 1 Prambanan in facing earthquake disasters is categorized as ready. This is due to the counseling and socialization about earthquakes.
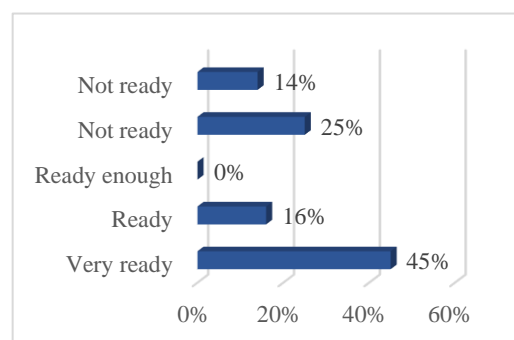

Figure 9. Disaster Warning Indicator of SMAN 1 Pakem

In the disaster warning parameters, it falls into the ready category with a value of (72,1). Because 45.1%, or 23 students,

showed signs for a volcanic eruption warning, such as traditional drums, bells, gongs, or sirens available at their school as information about disaster warnings (Figure 9).
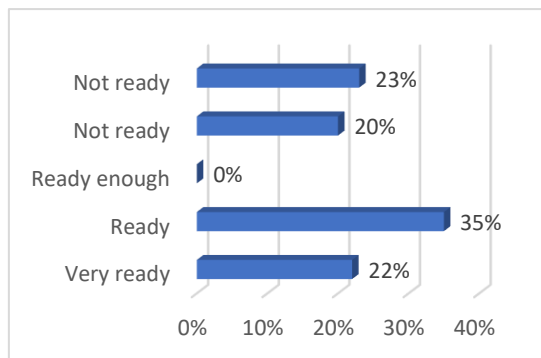

Figure 10. Indicator of Resource Mobilization at SMAN 1 Pakem

The parameter for resource mobilization has the lowest index value, with a score of 60.3, which falls into the fairly ready category (Figure 10). This is in accordance with Hayati's research. (2019). This research shows that the level of community preparedness in the Selo District for the eruption of Mount Merapi falls into the low category. Hidayati et al. (2006) state that the division of roles among each component of the school: the principal, teachers, staff, and students is an indicator that supports the resources that are prepared and ready to face disasters. The level of knowledge, emergency response plans, and readiness for disaster warnings do not exclude the possibility of effective resource mobilization (Maryadi, 2021). The imbalance between the three parameters indicates that the students of SMAN 1 Pakem need to improve in the aspect of mobilization. Therefore, to support this, good efforts are needed from the school as well as cooperation with external parties.

3. The difference in the level of preparedness of students from SMAN 1 Cangkringan and SMAN 1 Pakem in facing the eruption disaster of Mount Merapi

The difference in disaster preparedness levels for the eruption of Mount Merapi among students at SMAN 1 Cangkringan and SMAN 1 Pakem was conducted using non-parametric statistical analysis, specifically the Mann-Whitney test, as shown in the Table 6.

Table 6. The difference in disaster preparedness levels for the eruption of Mount Merapi

Origin School	N	Mean rank	Significance (p)	Description
SMAN 1 Cangkringan	50	60,77	0,001	There is a difference
SMAN 1 Pakem	51	41,03		

The results from Table 6 show that the Asymp. Sig. (2-tailed) value is 0.001. This means that there is a significant difference in how ready the students are at SMAN 1 Cangkringan (the school that was affected) and SMAN 1 Pakem (the school that was receiving the threat of the Mount Merapi eruption). This is because the p-value is less than 0.05 (p = 0.001), which means that the important value (p) of 0.001 is less than 0.05. In this case, SMAN 1 Cangkringan has better preparedness compared to SMAN 1 Pakem because the mean rank value of SMAN 1 Cangkringan is known to be higher, which is (60.77), while the mean rank value of SMAN 1 Pakem is (41,03). This is in line with the research conducted by Dhiroh in 2014. Based on the research, there is a difference between the preparedness of disaster-ready schools and non-disaster-ready schools in facing disasters. The research results also show that out of 4 non-prepared school samples in Bantul Regency, they are categorized as ready for earthquake and tsunami disasters. In addition, this research is also in line with the study conducted by Hamdani in the year 2015. The research

shows that the level of preparedness in disaster-ready schools is categorized as high (55.92), while non-disaster-ready schools fall into the moderate category with a score of (22.2%). This means that students' preparedness for eruption disasters is higher in disaster-ready schools compared to non-disaster-ready schools. In that sense, the schools affected in this research are synonymous with disaster-resilient schools, while buffer schools refer to non-resilient schools in Hamdani's study.
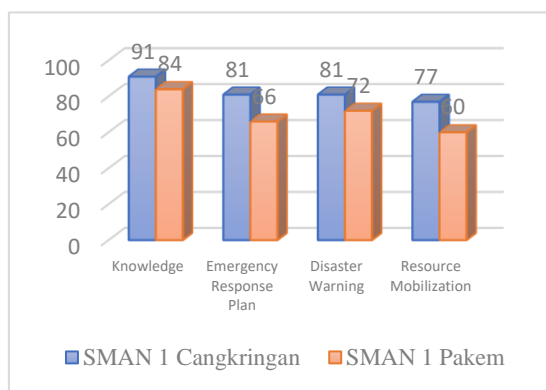

Figure 11. Student Preparedness Level Diagram

Significant differences were also found in the values of each parameter, as evidenced by the students' preparedness, which was calculated for each parameter. In terms of disaster knowledge, both schools have a very well-prepared parameter index. SMAN 1 Cangkringan (91.0%) and SMAN 1 Pakem (84.5%) are both categorized as very well prepared (Figure 11). Given the students' vulnerability to the Mount Merapi disaster, it is necessary to increase their capacity so that they can conduct individual self-assessments to reduce the occurrence of casualties. This has been achieved by incorporating disaster material into the learning process. Therefore, both affected schools and buffer schools have a high level of knowledge about the causes of volcanic eruptions, the characteristics of

volcanoes, and the actions to be taken during a disaster at school. With a strong understanding of these causes, students can minimize the risks posed by volcanic eruptions.

In the emergency response plan and early warning system parameters, SMAN 1 Cangkringan is categorized as very prepared. Meanwhile, SMAN 1 Pakem is categorized as prepared. Both have index values that are not very different. This indicates that whenever a disaster occurs. Students recognize the warning signs of disasters and understand what needs to be done to minimize the impact of disasters. The mobilization of resources is based on school policies and the involvement of school stakeholders in order to deploy human and financial resources and infrastructure to ensure disaster preparedness in schools (Apriyanti, 2019).

Overall, based on the mobilization parameter results, it is known that students from SMAN 1 Cangkringan are in the ready category with a score of (77.5), while SMAN 1 Pakem is fairly ready with a score of (60.3). This means that in terms of resource mobilization, students at SMAN 1 Cangkringan are 17.2% higher compared to those at SMAN 1 Pakem. This is based on structural conditions; both buildings already have earthquake-resistant structures equipped with evacuation routes, gathering points, and manual sirens. However, at SMAN 1 Pakem, the facilities and infrastructure are still limited, including stretchers, tents, and first aid kits. Additionally, the simulation exercises are only conducted once a year. It can be said that this method is not very effective. Therefore, long-term monitoring and evaluation need to be conducted to ensure that the implementation of disaster reduction programs can proceed as smoothly as possible.

Based on the research findings, which are also supported by previous

studies, it can be concluded that there is a difference in student preparedness between disaster-affected schools and buffer schools. Both have different averages. Schools that are affected are more prepared than those that are disaster-resilient. The most striking difference among the four parameters is disaster warning and resource mobilization. SMAN 1 Cangkringan is more prepared compared to SMAN 1 Pakem.

CONCLUSION

Based on the analysis of the data that has been obtained, it can be concluded that: the preparedness of students at SMAN 1 Cangkringan, as a school affected by the eruption of Mount Merapi, is rated as "Very Prepared" with a score of 82.75. The scores obtained from each indicator are as follows: the knowledge indicator falls into the very ready category with a score of 91.0; the emergency response plan indicator is also very ready with a score of 81.0; the disaster warning indicator is classified as very ready with a score of 81.5; resource mobilization is categorized as ready with a score of 77.5. The preparedness of students at SMAN 1 Pakem, as a school affected by the eruption of Mount Merapi, is rated as "Ready" with a preparedness level percentage of 70.85. The scores obtained from each indicator are as follows: the knowledge indicator falls into the very ready category with a score of 84.5, the emergency response plan indicator is categorized as ready with a score of 66.5, the disaster warning indicator is also categorized as ready with a score of 72.1. the resource mobilization indicator is categorized as sufficiently ready with a score of 60.3.

There is a difference in student preparedness between SMAN 1 Cangkringan and SMAN 1 Pakem. This result is indicated by a p-value of less than 0.05 (p=0.014), meaning there is a significant difference in student preparedness between SMAN 1 Cangkringan, which is an affected school, and SMAN 1 Pakem, which is a receiving school, in facing the threat of the Mount Merapi eruption.

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