SENJOp
http://senjop.ppj.unp.ac.id/index.php/senjop

Science and Environmental Journals for Postgraduate
Vol. 4 No. 1 (pp. 8-16) December 2021
p_ISSN 2655-5085
e_ISSN 2655-5239

DISSEMINATION OF DISASTER PREPAREDNESS SCHOOLS (SSB) IN PARIAMAN CITY

*Dedi Hermon[1], Erianjoni[2], Aprizon Putra[3]

[1]Professor – Department of Geography, Faculty of Social Science – Universitas Negeri Padang
[2]Lecturer – Department of Sociology, Faculty of Social Science – Universitas Negeri Padang
[3]Research Assistant of Environmental Science – Universitas Negeri Padang
*E–mail: dihermon006@gmail.com

Received: 01 Des. 2021, Revised: 13 Des. 2021, Accepted: 25 Des. 2021

ABSTRACT

Community service activities with this type of Community Partnership Program (PKM) are carried out as a form of higher education participation (Department of Geography, Faculty of Social Sciences – Padang State University/FIS-UNP) in Middle Schools First (SMP) in Pariaman City by taking into account the various conditions experienced by students and the school in the school. The complexity of these problems can have an impact that can affect teaching and learning activities in SMP coastal regions of Pariaman City, such as SMP 1 (Kampung Perak, Central Pariaman), SMP 2 (Kampung Baru, Central Pariaman), SMP 4 (Rawang, Central Pariaman), and SMP 7 (Manggung, North Pariaman). then the PKM program team to the SMP scope schools through the Education, Youth, and Sports (PPO) Office in Pariaman City from the Department of Geography FIS-UNP intend to provide information and practical knowledge to students and schools related to disaster risk management that can be done if at any time a disaster occurs so that a disaster preparedness school is realized in Pariaman City The purpose of community service activities PKM is to instill awareness in students, schools and the community about the importance of early vigilance and preparedness to reduce the risk of disasters that cause loss of life and property thing. This PKM program is focused on junior high school students in the coastal region of Pariaman City through socialization activities for disaster preparedness schools (SSB) and training in earthquake disaster management with the potential for a tsunami. The method used in this service activity is to use an andragogy approach. This approach is used to optimize participant participation in each planned activity agenda, and a simulation training approach using several signs in the concept of earthquake disaster mitigation with the potential for a tsunami, such as evacuation routes, evacuation points, and gathering points that have previously been prepared in the form of structured research. Partners in this PKM program include the head of the PPO Office, and the school (principals, teachers, students, staff, and school guards) and the surrounding community. The expected result of this activity is the dissemination of various information related to earthquake disaster mitigation measures with the potential for a tsunami with various supporting aspects, such as 1) the formation of a disaster preparedness school community at the junior high school level in Pariaman City; 2) availability of data and information in the form of earthquake and tsunami disaster risk management maps in Pariaman City; and 3) scientific publications in the form of accredited national journals.

Keywords: SMP, Disaster Preparedness, Earthquake, Tsunami, Pariaman.

INTRODUCTION

In the last 14 years, Indonesia has experienced several disasters, including the 2004 Aceh tsunami, 2006 Yogyakarta earthquake, 2009 Tasikmalaya earthquake, 2009 West Sumatra earthquake, 2009 Mentawai tsunami, 2010 West Papua Warrior landslide, 2010 eruption of Mount Merapi, and earthquake–tsunami–liquefaction Palu Donggala 2018 (Hermon, 2019; Timperio, 2020). Likewise, the meeting of the Indonesian Ocean floor

plate at any time can cause a large earthquake with the potential for a tsunami (Natawijaya & Triyoso, 2007). Existing historical experience makes people in coastal regions traumatized by the disaster. The impact of the disaster was in the form of loss of life and property, destruction of facilities and infrastructure, economic and business disturbances, and even psychological (traumatic) disturbances in the community.

Pariaman City is one of the cities prone to earthquakes with the potential for a tsunami on the West coast of Sumatra Island (Hermon, 2019; Hermon et al, 2020; Hermon & Ganefri, 2021). Although it has a very high potential for disaster, the coastal region of Pariaman City is inhabited by many residents. This is none other than because coastal regions have promising potential in supporting the community's economy, such as agriculture, tourism, and others. For this reason, disaster risk management is indispensable in regional development planning, especially natural disasters such as earthquakes and tsunamis (Ihsan & Pramukanto, 2017; Oktorie et al, 2019; Hermon et al, 2020). The earthquake that occurred in West Sumatra on September 30, 2009, is an illustration of how big the losses caused by disasters in Indonesia are. As many as 1,195 people died and 249,833 housing units were damaged (114,797 heavily damaged), 2,512 educational facilities units (9,051 local), 1,010 government facilities, 2,104 worship facilities, 177 km of roads, 4,980 m bridges, 25 hotels, irrigation facilities, markets, disconnection of electricity networks, telecommunications networks, clean water networks, and other infrastructure facilities (Akbar, 2015). Not to mention the impact of other losses, namely on the psychological side of the community and other aspects of life, such as education, economy, and social/local wisdom (KPBI, 2011).

Pariaman City has a very clear vision in the field of education, through its flagship program in free education services. In addition, it also aims to develop non-formal education and improve the welfare of honorary teachers at the PAUD, TK, SD, SMP, and SMA levels. The PKM program in community service by the Department of Geography FIS-UNP is expected to be able to provide solutions to schools and the community on how to anticipate and cope in the event of a disaster. This PKM is one way to transfer knowledge to students and SMP in Pariaman City, especially SMP located in coastal areas of Pariaman City, such as SMP 1 (Kampung Perak, Central Pariaman), SMP 2 (Kampung Baru, Central Pariaman), SMP 4 (Rawang, Central Pariaman), and SMP 7 (Manggung, North Pariaman), besides that there are SMP IT Nurul Ilmi (Ampalu, North Pariaman) and 2 MTSN, namely MTsN Model Padusunan and MTsN 1 (Pasir, Central Pariaman) through coordination with the PPO Office of Pariaman City through the involvement of lecturers and students to assist students and related schools in implementing the PKM program through "Disaster Preparedness School Socialization in SMP in Pariaman City". In line with that in an independent school development program, school preparedness is needed in dealing with disasters so that students and the school can anticipate disasters that can happen to them before the arrival of outside assistance.

From the description above, it can be concluded that the school should always provide innovation and have creativity in developing knowledge of the current situation, especially in the field of natural disasters that can threaten the surrounding environment. Furthermore, there are still limited opportunities for students and schools to participate in training related to SSB, the PKM program team to the junior high school scope through the PPO Office in Pariaman City from the Department of Geography FIS-UNP intends to provide information and practical knowledge to students and the school is related to disaster risk management which can be done if a disaster occurs at any time so that SSB are realized in Pariaman City. The purpose of PKM community service activities is to instill awareness in students, schools, and the community about the importance of early vigilance and

preparedness to reduce the risk of disasters that cause loss of life and property.

IMPLEMENTATION METHODS

1. The activity stage to implement the problem solution

The socialization of SSB at SMP in Pariaman City was carried out using an andragogy approach (Blondy, 2007; Leong, 2018; Nova et al, 2020). This approach is used to optimize participant participation in each planned activity agenda. In addition, the use of a participatory approach in delivering concepts and theories in training to read/know related data and information (digital and printed maps), types of disasters, tools, and disaster preparedness simulation training to encourage students and the school to be more active both in activities individuals and groups, to create an intimate and dynamic atmosphere.

Implementation of the process of socialization activities for SSB will be carried out classically and individually. Classical activities are used when delivering theories and concepts, namely, the selected resource person will provide reviews and deliver material and guide participants in discussion activities. while individual activities are used during the direct practice of making educative media in innovative learning to increase the creativity of junior high school teachers in compiling teaching materials related to digital disaster risk management (Mustain, 2018). The stages in implementing solutions to partner problems (SMP Pariaman City) in the socialization of SSB in SMP in Pariaman City are:

Preparation phase

The stages of preparation carried out include:

a) Conducting observations on the target object so that the information obtained provides a clearer picture of the activities to be carried out later.
b) Carry out meetings/discussions with members of the service implementation team and formulate what steps must be carried out in this activity.
c) Determination of criteria for students and the training school.
d) To make this activity more effective, the number of participants in the simulation training in this activity is set at 30 people.
e) Desk study explores and evaluates secondary data and related studies.
f) Carry out a field data survey to obtain detailed data on the location and social conditions of the community.

Disaster risk management training

The disaster risk management training carried out in this PKM service is in the form of providing materials, discussions, and simulations.

2. Participation of partners in activities

During the implementation of the disaster preparedness school training, partner institutions from the PPO and SMP in Pariaman city, namely SMP 1 (Kampung Perak, Central Pariaman), SMP 2 (Kampung Baru, Central Pariaman), SMP 4 (Rawang, Central Pariaman), and SMP 7 (Manggung, North Pariaman) as a provider of SSB training venues, as well as the party in charge of recruiting participants and liaising with the local SMP principal.

3. Program evaluation and sustainability

The next stage is to evaluate the implementation of disaster risk management training. Evaluation is one of the most important components of training. Without evaluation, the

purpose of the training cannot be known, whether it was achieved or not in evaluating disaster preparedness school training activities, the following things need to be considered, namely:

a) Did the participants understand the purpose of the disaster preparedness school training?
b) Who has an active role in disaster preparedness school training?.
c) How is the completeness of supporting equipment in disaster preparedness school training?
d) How did the students and the school respond?
e) How long does it take to carry out the actions in each step of the disaster preparedness school training?
f) What are the things that have gone well and things that still need to be improved?.

RESULTS

1. Knowing the ability and involvement of teachers and junior high school students in Pariaman City in conducting disaster preparedness simulations

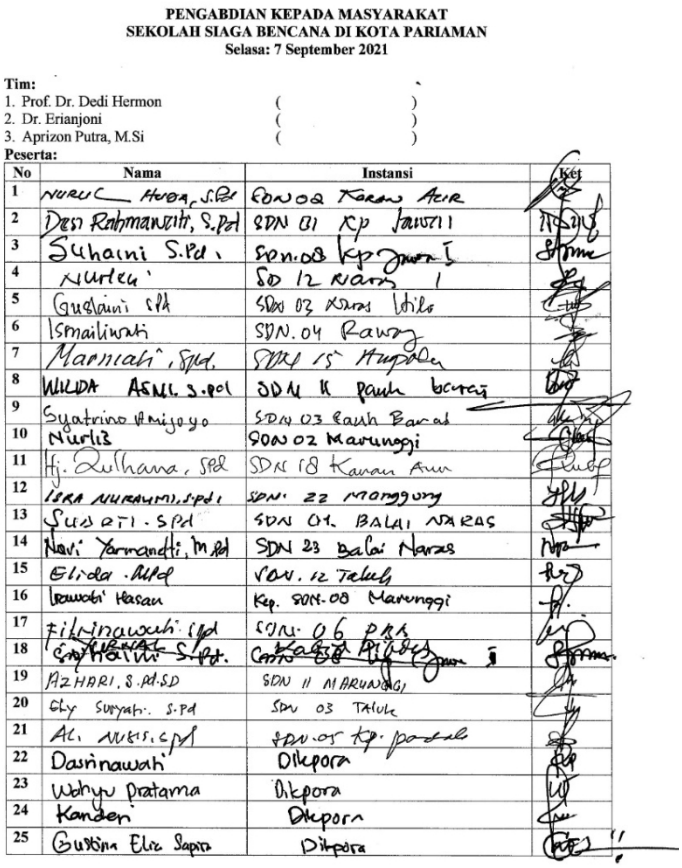
This research was conducted at SMP 1 (Kampung Perak, Central Pariaman), SMP 2 (Kampung Baru, Central Pariaman), SMP 4 (Rawang, Central Pariaman), and SMP 7 (Manggung, North Pariaman) through a coordinator from the PPO Office of Pariaman City with The target respondents are teachers and junior high school students in Pariaman City, with a total sample of 25 teachers and 25 SMP students in Pariaman City. This PKM optimizes the participation of participants in every activity agenda that has been planned. In addition, the use of a participatory approach in delivering concepts and theories in training to read/know related data and information (digital and printed maps), types of disasters, tools, and disaster preparedness simulation training to encourage students and the school to be more active both in activities individuals and groups, to create an intimate and dynamic atmosphere (Rahma, 2018).

The implementation of the SSB socialization activity process will be carried out classically and individually (Kurniati, 2013). Musfah (2015) added, classical activities are used when delivering theories and concepts, namely the selected resource persons will provide reviews and deliver material and guide participants in discussion activities. While individual activities are used during the direct practice of making educative media in innovative learning to increase the creativity of junior high school teachers in compiling teaching materials related to digital disaster risk management. Furthermore, an assessment is carried out based on the tests carried out and determines the value and level of ability of teachers and junior high school students against the earthquake with the potential for a tsunami that threatens Pariaman City. Based on the test results of 25 teachers and 25 junior high school students in Pariaman City (Fig 1), the results of the knowledge level of an earthquake with the potential for a tsunami are obtained and are included in Table 1 as follows.

Tabel 1. The level of ability of teachers and students of SMP in Pariaman City in conducting disaster simulations

Question Indicator	Explanation	Value	(%)
Knowledge and Attitude	Contains 14 question points regarding general knowledge related to an earthquake with the potential for a tsunami.	29/70	52,7
Policies and Guidelines	Contains 3 question points regarding the policy of the Pariaman City PPO Office to deal with earthquakes with the potential for a tsunami	7/15	12,7

Question Indicator	Explanation	Value	(%)
Emergency Response	Contains 4 question points regarding the attitude of being prepared in the event of an earthquake with the potential for a tsunami	8/20	14,5
Human Resources	Contains 3 question points regarding the experiences of teachers and students of SMP in Pariaman Cityin participating in training related to earthquakes with the potential for tsunamis	11/15	20
		55/120	100



PENGABDIAN KEPADA MASYARAKAT
SEKOLAH SIAGA BENCANA DI KOTA PARIAMAN
Selasa: 7 September 2021

Tim:
1. Prof. Dr. Dedi Hermon ( )
2. Dr. Erianjoni ( )
3. Aprizon Putra, M.Si ( )

Peserta:

No	Nama	Instansi	Ket.
1	Nurul Huda, S.Pd	SDN 02 Karan Aur	
2	Desi Rahmawati, S.Pd	SDN 01 Kp Jawa II	
3	Suhaini S.Pd.	SDN 08 Kp Jawa I	
4	Nurlela	SD 12 Naras I	
5	Gusniarni SPd	SDN 03 Naras Hilir	
6	Ismailiwati	SDN 04 Rawang	
7	Marniati, S.Pd.	[illegible]	
8	Wilda Asmi S.Pd	SDN 11 Pauh Barat	
9	Syafrino Amijoyo	SDN 03 Pauh Barat	
10	Nurlis	SDN 02 Marunggi	
11	Hj. Zulhana, SPd	SDN 18 Karan Aur	
12	Isra Nurahmi, S.Pd.I	SDN 22 Manggung	
13	Susanti S.Pd	SDN 01 Balai Naras	
14	Novi Yarmandti, M.Pd	SDN 23 Balai Naras	
15	Elida, M.Pd	SDN 12 Taluk	
16	Irawati Hasan	Kep. SDN 08 Marunggi	
17	Fitrinawati S.Pd	SDN 06 PKK	
18	[illegible]	[illegible]	
19	Azhari, S.Pd.SD	SDN 11 Marunggi	
20	Elly Suryati S.Pd	SDN 03 Taluk	
21	Ali Nukis, S.Pd	SDN 05 Kp. Pondok	
22	Dasrinawati	Dikpora	
23	Wahyu Pratama	Dikpora	
24	Kanderi	Dikpora	
25	Gustina Eliz Sapira	Dikpora	

Fig 1. Attendance for PKM activities for SMP Teachers in Pariaman City

Based on Table 1 above, the total ability of teachers and students of SMP in Pariaman Cityregarding earthquake disaster preparedness with the potential for a tsunami is 55 out of a maximum achievement value of 120. For the category of the ability of teachers and students of SMP in Pariaman City, it can be seen in Table 2 below.

Table 2. Ability categories of teachers and SMP students in Pariaman City

No	Index interval	Categories
1	24 – 56	Low
2	57 – 89	Medium
3	90 – 120	High

Based on Table 2 for categories and total achievements, teachers and students of SMP in Pariaman City, which amounted to 55 people, were in the "LOW" category.

2. Knowing the preparedness of teachers and students of SMP in Pariaman City before and after being given disaster preparedness training

To determine the preparedness of teachers and junior high school students in Pariaman

City, two stages of testing were carried out, namely before a simulation of an earthquake with a potential tsunami was carried out and after a simulation was carried out which aimed to determine the level of understanding of preparedness. Based on this test, it can be seen that the preparedness of teachers and students of SMP in Pariaman City before and after the simulation is carried out.

3. The results of the preparedness assessment of teachers and students of SMP in Pariaman City before the simulation is carried out

An assessment of the preparedness of teachers and students of SMP in Pariaman City for an earthquake with a potential tsunami was prepared by looking at four aspects, namely knowledge, and attitudes, policies and guidelines, cycle response, and human resources. The results of the pretest can be seen in Table 3 below.

Table 3. The results of the preparedness pretest of teachers and students of SMP in Pariaman City

Question Indicator	Explanation	Value	(%)
Knowledge and Attitude	Contains 14 question points regarding general knowledge related to an earthquake with the potential for a tsunami.	29/70	52,7
Policies and Guidelines	Contains 3 question points regarding the policy of the Pariaman City PPO Office to deal with earthquakes with the potential for a tsunami	6/15	12,7
Emergency Response	Contains 4 question points regarding the attitude of being prepared in the event of an earthquake with the potential for a tsunami	8/20	14,5
Human Resources	Contains 3 question points regarding the experiences of teachers and students of SMP in Pariaman Cityin participating in training related to earthquakes with the potential for tsunamis	11/15	20
		55/120	100

For more details on the preparedness assessment of teachers and students of SMP in Pariaman Citysee Table 4 below.

Table 4. Categories of preparedness for teachers and students of SMP in Pariaman City

No	Interval	Categories
1	24 – 43	Not Ready
2	44 – 63	Less Ready
3	64 – 83	Almost Ready
4	84 – 103	Ready
5	104 – 120	Very Alert

Based on Table 4 above, the index of the ability level of Teachers and students of SMP in Pariaman City, obtained a total score of "55" which can be concluded that Teachers and students of SMP in Pariaman City are "NOT READY" for an earthquake with the potential for a tsunami.

4. The results of the preparedness assessment of Teachers and students of SMP in Pariaman City after the simulation

After simulating an earthquake with the potential for a tsunami, a series of tests were carried out to determine the understanding and alert level of the teachers and students of SMP in Pariaman City. The test was carried out in the form of filling out a questionnaire containing 4 (four) indicators containing question points including knowledge and attitudes

about the earthquake and tsunami, policies and guidelines, emergency response, and Human Resources (HR). The results of the questionnaire assessment after the simulation activities can be seen in Table 5 below.

Table 5. Results of teachers and students of SMP in Pariaman Cityafter simulation

Question Indicator	Explanation	Value
Knowledge and Attitude	Contains 14 question points regarding general knowledge related to an earthquake with the potential for a tsunami.	60/70
Policies and Guidelines	Contains 3 question points regarding the policy of the Pariaman City PPO Office to deal with earthquakes with the potential for a tsunami	10/15
Emergency Response	Contains 4 question points regarding the attitude of being prepared in the event of an earthquake with the potential for a tsunami	15/20
Human Resources	Contains 3 question points regarding the experiences of teachers and students of SMP in Pariaman Cityin participating in training related to earthquakes with the potential for tsunamis	11/15
		96/120

For more details on the preparedness assessment of teachers and students of SMP in Pariaman City, see Table 6 below.

Table 6. Categories of Preparedness of teachers and students of SMP in Pariaman City

No	Interval	Categories
1	24 – 43	Not Ready
2	44 – 63	Less Ready
3	64 – 83	Almost Ready
4	84 – 103	Ready
5	104 – 120	Very Alert

In Table 6 above, the achievement of the preparedness scores of teachers and students of SMP in Pariaman City after a tsunami-potential earthquake simulation was carried out was 96. It can be concluded that the knowledge and preparedness of Teachers and students of SMP in Pariaman City is "READY" against an earthquake with a potential tsunami.

Fig 2. Photos of PKM activities at the PPO Office of Pariaman City

CONCLUSION

From the results of the analysis carried out, it can be concluded that: 1) The ability of teachers and junior high school students in Pariaman City regarding earthquake disasters with the potential for a tsunami is still relatively low due to lack of knowledge about earthquakes with potential tsunamis which greatly affects the preparedness of teachers and students of SMP in Pariaman City in dealing with earthquakes with potential tsunamis; and 2) The level of preparedness of teachers and students of SMP in Pariaman City was in the "NOT READY" category before the simulation was held. This illustrates that teachers and junior high school students in Pariaman City are less prepared to deal with earthquakes with the potential for a tsunami because they do not have sufficient knowledge about earthquakes with potential tsunamis, emergency response plans have not been maximized, and community participation in disaster preparedness training is still low. After simulating an earthquake with a potential tsunami disaster for teachers and students of SMP in Pariaman City, a test was conducted to determine the ability and preparedness for an earthquake with a potential for a tsunami. Teachers and students of SMP in Pariaman City were in the "READY" category.

REFERENCES

Akbar, E. (2015). Pembelajaran Siaga Bencana Anak Usia Dini (Vol. 25). Duta Media Publishing

Blondy, L. C. (2007). Evaluation and application of andragogical assumptions to the adult online learning environment. *Journal of interactive online learning*, *6*(2), 116-130

Hermon, D. (2019). Evaluation of physical development of the coastal tourism regions on tsunami potentially zones in Pariaman City-Indonesia. *International Journal of GEOMATE*, *17*(59), 189-196

Hermon, D., Putra, A., Erianjoni., & Oktorie, O. (2020). Social-Economic Changes of Society Post-September 30, 2009 Earthquake in Pariaman City. *Science and Environmental Journals for Postgraduate (SENJOp)*. 2(2), 71-81

Hermon, D., Ikwan., Putra, A., & Oktorie, O. (2020). Spatial Analysis of Tsunami Vulnerability Zones as a Basic Concept of Coastal Disaster Mitigation in Development Planning of Pariaman City. *Journal of Advanced Research in Dynamical and Control Systems*, 12 (7), 681-690

Hermon, D., & Ganefri. (2021). *Pariaman City: Mentawai Earthquake And Tsunami Disaster Gates.* Book Rivers

Ihsan, F., & Pramukanto, Q. (2017). Perencanaan Lanskap Kota Pariaman Provinsi Sumatera Barat Berbasis Mitigasi Tsunami. *Jurnal Lanskap Indonesia*, *9*(1), 1-12

Kurniati, A. (2013). Aplikasi Pendekatan Pembelajaran Individual Mata Pelajaran Pendidikan Kewarganegaraan Pada Siswa Difabel (Tunanetra) di MAN Maguwoharjo. *Jurnal Citizenship*, *3*(1), 41-56

Konsorsium Pendidikan Bencana Indonesia (KPBI). (2011). Kerangka Kerja Sekolah Siaga Bencana. Konsorsium Pendidikan Bencana Indonesia

Loeng, S. (2018). Various ways of understanding the concept of andragogy. *Cogent Education*, *5*(1), 1496643

Musfah, J. (2015). *Manajemen Pendidikan Teori, Kebijakan, dan Praktik*. Kencana

Mustain, M. (2018). Perilaku Efektif Guru dalam Melaksanakan Kegiatan Pembelajaran Individu secara Klasikal. *Progressa: Journal of Islamic Religious Instruction*, *2*(2), 1-8

Natawidjaja, D. H., & Triyoso, W. (2007). The Sumatran fault zone—From source to hazard. *Journal of Earthquake and Tsunami*, *1*(01), 21-47

Rahma, A. (2018). Implementasi program pengurangan risiko bencana (PRB) melalui pendidikan formal. *Jurnal VARIDIKA*, *30*(1), 1-11

Timperio, G., Tiwari, S., Lee, C. K., Samvedi, A., & de Souza, R. (2020). Integrated decision support framework for enhancing disaster preparedness: A pilot application in Indonesia. *International Journal of Disaster Risk Reduction*, *51*, 101773

Nova, S., Chandra, D., Edial, H., Rahmi, L., Putri, S. K., Putra, A., Hermon, D., Yulfa, A., Mariya, S., Wijayanto, B., Wilis, R., & Mandriyanti. (2020). Training on the Making of 3D Geographic Learning Media (Models of Earth Fours and Fractions and Earth Structures) In Sma N 2 Batang Anai-Padang Pariaman Regency And SMA N 5 Pariaman City. *International Journal of Progressive Sciences and Technologies*, *23*(2), 271-276

Oktorie, O., Rusdi, R., Heldi, H., Barlian, E., Putra, A., & Ramadhan, R. (2019). Disaster Mitigation Based on Environmental of Coastal Area Communities in Pariaman City Indonesia. *Sumatra Journal of Disaster, Geography and Geography Education*, *3*(2), 202-207.