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## **ENHANCING DISASTER MITIGATION EFFORTS THROUGH COMMUNITY ENGAGEMENT AT LAMPUYANG ELEMENTARY SCHOOL, PULO ACEH**

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**Abstract :** *Pulo Aceh is highly vulnerable to natural disasters, including earthquakes and tsunamis. The lack of awareness and limited knowledge among the community, particularly elementary school students, regarding disaster mitigation efforts poses a serious challenge in fostering local community resilience. This community service activity aims to enhance students' disaster awareness and preparedness at Lampuyang. Public Elementary School, Pulo Aceh. The methods used include interactive education, evacuation simulations, and emergency response training tailored to local conditions and participant age. The results show an increase in students' understanding of types of disasters, initial self-rescue steps, and the importance of individual and school preparedness in facing emergencies. Strengthening disaster mitigation capacity at the elementary school level has proven effective as an initial strategy for cultivating a disaster-aware culture from an early age. This activity is expected to serve as a model for school-based disaster education that can be implemented in other disaster-prone areas.*

**Keywords:** *Disaster Mitigation; Elementary School; Pulo Aceh.*

### **1. INTRODUCTION**

Indonesia is one of the countries with the highest risk of natural disasters in the world. Aceh, particularly Pulo Aceh, is an archipelago located along the Pacific Ring of Fire. This makes Aceh one of the provinces most prone to disasters. Therefore, strengthening disaster mitigation is an urgent priority, especially in high-risk areas such as Pulo Aceh. Mitigation efforts should not be confined to technical or infrastructure aspects; they must also encompass educational aspects, particularly for elementary school-aged children, who are considered vulnerable groups. Providing a sound understanding of disaster mitigation from an early age can be the first step toward creating a disaster-resilient society (Fauzi, 2020).

Pulo Aceh is one of the areas in Aceh Province at high risk of natural disasters, particularly earthquakes and tsunamis, given its location along the fault line and along the west coast of Sumatra. One of the worst disasters to ever hit this region occurred on December 26, 2004, when a 9.3 magnitude earthquake struck the Indian Ocean and triggered a devastating tsunami that killed more than 170,000 people in Aceh. One of the worst-affected areas was Pulo Aceh, an island group located west of Sumatra. The tsunami devastated many villages in Pulo Aceh, destroyed infrastructure, disrupted communications, and left most residents homeless and without family members. This tragedy serves as a stark reminder of the importance of community preparedness, including for children, in the face of natural disasters that can strike at any Time (Maliki et al., 2023).

Lampuyang Village, located in Pulo Aceh District, is part of an area with a high level of disaster vulnerability. This geographic location demands early community preparedness, including within the elementary school environment, which serves as a center for education and character building for the local community. Elementary schools are strategic institutions for fostering a culture of disaster awareness from an early age. Integrated disaster education within the school environment plays a crucial role in instilling in students the values of preparedness and mitigation. However, the reality on the ground shows that most schools in remote areas like Pulo Aceh lack a systematic disaster education program. Lack of resources, limited access to training, and a shortage of relevant teaching materials are the main obstacles to developing school capacity to respond to disasters (Lasaiba, 2023).

This situation served as the basis for implementing community service activities at Lampuyang Public Elementary School in Pulo Aceh. These activities focused on strengthening understanding and skills in disaster mitigation through an educational and participatory approach. The main target is elementary school students—the younger generation—who, despite their age, have the potential to be equipped with basic knowledge of types of disasters, self-rescue steps, and the important role of the school environment in enabling rapid and appropriate responses. In addition, teachers and school principals are also actively involved as agents of change and main facilitators in the disaster learning process.

Based on field observations during community service activities at Lampuyang Public Elementary School, students already had initial knowledge of several types of natural disasters, including earthquakes and floods. However, this understanding was limited to recognizing the types of disasters, without comprehensive knowledge of their causes, the processes that cause disasters, and appropriate mitigation and self-rescue measures. Through this activity, a significant social change is likely to occur in the form of increased awareness of disaster risks among elementary school students in Lampung, as well as the development of a culture of disaster awareness within the elementary education environment. Strengthening school-based disaster capacity is the first step toward creating resilient, adaptive communities to potential future disaster risks. This activity, with its promising outcomes, also serves as a model for educational interventions that can be replicated in other areas with similar vulnerabilities (Desiana et al., 2023).



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This situation provides a crucial foundation for implementing community service activities, particularly in the education division, with a primary focus on disaster education in elementary schools. The program, aptly named PANDAI (Indonesian Safe and Disaster Preparedness Education), reflects our commitment to providing elementary school students with a comprehensive understanding of disaster concepts through conceptual, visual, and hands-on practice. The education provided included an introduction to disaster causes, simple mitigation efforts, evacuation drills, and familiarization with safe routes and assembly points. Lampuyang Elementary School was chosen as the activity location for a reason. This school is located in an outlying area geographically vulnerable to disasters, yet it does not yet have a systematic disaster education program. Furthermore, this school is also a strategic point for disseminating disaster literacy to students as agents of change within their families and communities (Qurniawan, 2014).

The main objective of this activity is to create sustainable social change, namely to cultivate a young generation that not only knows about natural disasters but also understands how to prevent them, the steps they can take to protect themselves, and how to stay alert when a disaster occurs. By 'social change', we mean a shift in attitudes, behaviors, and practices related to disaster preparedness and response. Children are expected to internalize this knowledge into concrete actions in their daily lives, such as participating in evacuation drills and sharing their knowledge with their families. This aligns with the Hyogo Framework for Action (UNDRR, 2005) and the Disaster-Safe Education Unit (SPAB), which emphasize the importance of disaster preparedness education in elementary schools as part of sustainable development efforts and early disaster risk reduction.

## **2. METHOD**

This community service activity was held at Lampuyang Public Elementary School, located in Pulo Aceh District, Aceh Besar Regency, Aceh Province. This island region, located west of Banda Aceh City, is known to be prone to disasters, particularly tsunamis and earthquakes. The activity lasted four days, from March 14 to 17, 2025. This region was selected based on its vulnerability to natural disasters, particularly earthquakes and tsunamis, and the limited access to disaster education for the community and primary education institutions in the area. Participants included first- through sixth-grade students, educators, and school principals. This group was chosen because it plays a crucial role in the learning process and is a key player in fostering a culture of disaster awareness from an early age within the school environment. (Septikasari, 2022)

This activity is an initiative of young volunteers who care about improving community capacity in disaster mitigation. One of the main focuses of this activity is disaster

education for Lampung State Elementary School students as part of an effort to strengthen disaster literacy from an early age. The methods used in this activity include interactive counseling, evacuation simulations, educational games, distribution of visual materials such as posters, and direct self-rescue practice. In addition, volunteers also conducted observations of the school environment and engaged in persuasive outreach to teachers and residents to ensure the sustainability of the activities. This participatory approach has proven effective in creating a pleasant learning environment while also building collective awareness of the importance of disaster preparedness in the school and surrounding community.

This community service activity was conducted using a community organization approach, involving local schools in developing the activity plan. Initial meetings were held to identify local needs and potential relevant to the disaster mitigation theme. Through joint deliberation, it was agreed that the appropriate activity was a combination of disaster education, evacuation simulations, and basic emergency response training tailored to students' ages and understanding (Zahro, 2017).

### 3. RESULT AND DISCUSSION

The strategy used in this activity is the service-learning approach, which emphasizes integrating the learning process with real-world practice through direct student involvement at each stage. Education is provided through interactive counseling, visual media, group discussions, and educational games, followed by evacuation simulations and simple first-aid practices. The activity materials are designed to be contextual and participatory, adapting to potential disaster risks that schoolchildren may face.



Figure : 1



Figure : 2



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Figure : 3



Figure :4

The image above shows that the students were highly engaged in this activity. The learning took place in a school environment adorned with educational murals, fostering a participatory learning atmosphere. The material was delivered by a team of facilitators in a communicative, interactive manner, supported by visual media, such as a projector. One of the main topics covered in the program, PANDAI (Indonesian Safe and Disaster Preparedness Education), begins with an introduction to disaster types, which are classified into two categories: natural disasters, such as volcanic eruptions, earthquakes, tsunamis, and landslides. Non-natural or artificial disasters such as forest fires, floods, and social conflict. Prevention efforts, characteristics of these disasters, causes, and other materials related to natural disasters that frequently occur in Indonesia, especially in Aceh, which is close to the coast. Then, the delivery of the material is also adjusted to the level of understanding of elementary school students so that it is easier to absorb and apply in everyday life by providing a game model in the form of arranging words, then guessing pictures, playing Ludo, singing, and practicing protecting oneself during an earthquake.

In addition to material presentations, the activities included simple evacuation drills and group discussions to develop children's critical thinking skills in emergencies. These activities provided ample space for students to ask questions and share experiences related to disasters they had experienced or witnessed. The image above clearly demonstrates the students' enthusiasm and active participation, a key indicator of the success of this educational approach to early disaster mitigation. This is evident in students' involvement in activities such as drawing, completing quizzes, and sharing their understanding of disaster safety measures. The activity concluded with a group photo session that showcased the volunteers' and students' togetherness, happiness, and camaraderie.

Visual documentation shows that this program not only has an educational impact but also strengthens social values such as cooperation, caring, and solidarity. Overall, the PANDAI (Indonesian Safe and Disaster Preparedness Education) program at Lampuyang

Public Elementary School has proven to be a concrete example of community-based disaster education that can be replicated in other disaster-prone areas. This activity also serves as a reminder that early disaster mitigation education is a strategic step in building community resilience for the future.

### **Condition of Schools in Pulo Aceh**

The school situation in Pulo Aceh still faces various obstacles, such as inadequate infrastructure, teaching staff, and accessibility. According to Hasan (2022), most schools in the Pulo Aceh region provide only primary education. However, at the junior and senior levels, access remains very limited and requires students to travel considerable distances from their homes. This limits access to higher education for children in Pulo Aceh. The condition of the facilities and infrastructure is also a special concern, this school still does not have a good library space, also many of the books are still old without the provision of new reading books, so that children are lazy to go to the library because they are bored with the condition of the library which is less interesting for male and female students, and is not supported by technological facilities such as computers and internet access. This elementary school has approximately 40 students and five teaching staff. When the research team conducted the activity, all students pictured were from first to sixth grade. Zulkarnaen (2021) stated that the low quality of educational facilities in Pulo Aceh is directly proportional to student learning outcomes, which are below the district average.

The problem of teaching staff at Lampung's public elementary schools is also very concerning. The number of teachers is minimal, and many come from outside Pulo Aceh. Most of the teaching staff are from Banda Aceh. Located far away on the westernmost tip of Sumatra, many people are hesitant to serve and manifest themselves as educators in the Pulo Aceh region due to difficulties in accessing facilities and infrastructure, such as transportation, shopping centers, and support facilities, as well as limited network and internet access (Sari & Abdullah, 2023).

However, in this case, the local government continues to try to overcome this challenge by making various efforts so that children in the Pulo Aceh area can experience the same access to education as children in the city of Banda Aceh and other areas. This includes implementing a more flexible, streamlined civil service recruitment program, constructing new schools, and offering incentives to teachers willing to serve in underserved areas (Rahman, 2022). Although comparable results have not yet been demonstrated, the local government is pursuing these steps to lay a foundation for improving the quality of education on remote and underdeveloped islands like Pulo Aceh.

### **Disaster Mitigation Learning**

Disaster Reduction Learning is an educational process aimed at increasing individuals' and groups' knowledge, awareness, and skills for dealing with potential disasters in their area. According to Rachmawati (2020), disaster reduction learning focuses not only on theory but also emphasizes hands-on practice, such as simulated evacuations,



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familiarization with safe routes, and the use of safety equipment. This learning process is crucial for children to implement from an early age, especially in disaster-prone areas. Synah (2021) states that a culture of disaster awareness can be promoted by integrating disaster reduction materials into students' school curricula and the broader community. This way, students can not only understand disaster risks but also respond quickly and accurately in an emergency.

Effective disaster risk reduction learning relies heavily on the active involvement of all stakeholders, such as teachers, parents, local governments, and disaster management agencies, as emphasized by Nugroho and Lestari (2019). They emphasize that the success of disaster education hinges not only on teaching methods but also on mutually supportive cross-sector collaboration. Furthermore, the teaching materials used need to be contextual and tailored to the types of disasters that are most likely to occur in each region. For example, in earthquake- and tsunami-prone areas, students should be taught to seek shelter during an earthquake and to recognize the early signs of a tsunami. This way, they will be better prepared to face potential future disasters. Wahyuni (2022) also noted that locally based learning can enhance students' understanding of the limits of damage and risk, as the material presented directly connects to their daily lives.

### **Strategy for Implementing Community Service Activities to Improve Disaster Preparedness for Elementary School Children**

The strategy implemented in this activity aims to increase awareness, preparedness, and disaster-prevention efforts among elementary school students. The first step is to map disaster risks and school needs. This is intended to identify the most likely and broad motivations for schools in the face of disasters. Yuliani (2020) states that risk allocation is an essential foundation for developing targeted preparation programs. The next step is to develop disaster mitigation educational materials appropriate for elementary school children. This material should be presented in an engaging format, such as pictures, stories, and educational games. According to Suryadi (2019), a fun, age-appropriate learning approach can improve children's understanding and foster positive attitudes toward disaster preparedness. Once the materials are ready, live training and simulations are conducted in the school environment, such as earthquake or fire evacuation drills. Rahmawati (2021) emphasized that live simulation activities can develop children's reflexes and emergency response, as they learn through real-life experiences.

The participation of teachers and parents throughout the entire process is also crucial. Teachers act as primary mediators, continually learning how to proceed, while parents help enhance their children's understanding at home. Fitriani & Abdullah (2022)

added that synergy between schools and families can strengthen a culture of disaster awareness from an early stage. Finally, an evaluation of the activity was conducted through observation and group discussions. This evaluation is crucial for determining the children's level of understanding and the effectiveness of the strategies implemented. The evaluation results are then used as a basis for future program improvements (Nasution, 2020).

#### **4. CONCLUSION**

Strengthening disaster mitigation through community service at Lampuyang Public Elementary School in Pulo Aceh, an area prone to disasters such as earthquakes and tsunamis. This activity aims to increase elementary school students' awareness and preparedness for disasters and foster a culture of disaster awareness from an early age. This activity uses interactive educational methods, evacuation simulations, and emergency response training tailored to local conditions and participants' ages. The material is delivered using visual media, educational games, and hands-on self-rescue exercises. The activity also involves students, teachers, and the surrounding community to ensure the program's sustainability.

The results of this activity demonstrated increased student understanding of disaster types, self-rescue measures, and the importance of individual and school preparedness. Furthermore, the evacuation simulation and emergency response practice improved students' skills in dealing with emergencies. This activity not only had an educational impact but also reinforced social values such as cooperation and solidarity within the community. Thus, strengthening disaster mitigation capacity in elementary schools has proven effective as an initial strategy for creating disaster-resilient communities. This activity can serve as a model for school-based disaster education programs that can be implemented in other disaster-prone areas. Early disaster education is a strategic step in building community resilience to face future disasters.

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