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Strengthening Community-Based Disaster Literacy Through the Inerie Eco-Safe Community Model in Primary Schools in Golewa District

Sukmawati [1*], Sunimbar [1], Poppy Haryani [1], Martina Ayu Sejati [1], Arfita Rahmawati [1], Habibi Musa [2]
[1] Department of Geography Education, Faculty of Teacher Training and Education
[2] Department of Primary School Teacher Education, Faculty of Teacher Training and Education
Universitas Nusa Cendana
Jl. Adisucipto Penfui, Kupang, NTT, Indonesia

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ABSTRACT

Golewa District, Ngada Regency, is an area with potential exposure to various disaster threats, making it necessary to strengthen disaster literacy from school age. This community service activity aims to strengthen the disaster literacy of primary school students through the Inerie Eco-Safe Community program. The activity was carried out at SD Malanuza, SD Koeloda, and SD Rutosoro, involving 150 students, using a participatory approach through disaster education, the installation of evacuation route signage, and the establishment of a school-based disaster literacy community. The results show that students gained an understanding of various disaster threats and mitigation measures, the schools now have evacuation route signage as a preparedness support facility, and the Inerie Eco-Safe Community was formed as a platform to support the sustainability of disaster education within the school environment. This program demonstrates that integrating education, providing preparedness facilities, and actively involving school members can support the growth of a disaster-aware culture in primary schools.

Corresponding Author:

Sukmawati
Universitas Nusa Cendana
Email: sukmawati@staf.undana.ac.id

INTRODUCTION

Schools are one of the institutions with a strategic role in building a disaster-aware culture from an early age, particularly in areas with a high level of vulnerability to disasters. Disaster education aims not only to increase students' knowledge of disaster threats, but also to shape attitudes, skills, and preparedness in facing emergency conditions as part of disaster risk reduction efforts. Nations Office for Disaster Risk Reduction (1) positions education as one of the priorities in building disaster-resilient societies through strengthening the capacity of individuals and communities. In line with this, GADRRRES (2) emphasizes that strengthening disaster education, school risk management, and the provision of safe learning environments are key components in creating disaster-resilient schools.

In Indonesia, referring to the Ministry of Education (3),the implementation of disaster education has been developed through the concept of the Disaster-Safe Education Unit (SPAB), which emphasizes the integration of disaster risk reduction into school governance, the learning process, and the preparedness culture of school members. Strengthening SPAB is becoming increasingly important given that most educational units

in Indonesia are located in areas with disaster potential, requiring continuous capacity building (4). Therefore, strengthening disaster literacy in schools requires not only the delivery of material, but also needs to be supported by a safe learning environment, preparedness facilities, and the active involvement of all school members in building a disaster-aware culture.

Golewa District, Ngada Regency, is one of the areas located around Mount Inerie, giving it the potential to be affected by various types of disasters, particularly geological disasters such as volcanic eruptions and earthquakes. This condition calls for the strengthening of disaster literacy among students as a vulnerable group that nevertheless plays an important role in building a preparedness culture within the school environment. Various studies show that disaster education utilizing contextual learning, simulations, and community involvement can support the formation of a more sustainable disaster-aware culture compared to approaches that focus solely on the delivery of information. However, the implementation of disaster education in primary schools still faces various challenges, including limited preparedness support facilities and the lack of an optimal platform to maintain the sustainability of disaster literacy activities after a program has ended.

Based on these conditions, this community service activity developed the Inerie Eco-Safe Community as a community-based model for strengthening disaster literacy in primary schools in Golewa District. The program was carried out through disaster education, the installation of evacuation route signage as a preparedness support facility, and the establishment of the Inerie Eco-Safe Community involving teachers and students as an effort to build a sustainable disaster-aware culture within the school environment. This activity involved 150 students from three primary schools, namely SD Malanuza, SD Koeloda, and SD Rutosoro. Through a community-based approach, this program is expected to strengthen disaster literacy, encourage the active participation of school members, and support the creation of a school environment that is better prepared to face various disaster threats.

METHOD

This community service activity was carried out at the Golewa District Primary School Cluster, Ngada Regency, which includes SD Malanuza, SD Koeloda, and SD Rutosoro. The target of the activity was 150 students from the three schools. The location was selected based on the characteristics of the area around Mount Inerie, which has the potential for geological disaster threats, particularly volcanic eruptions. Therefore, strengthening disaster literacy from school age is an important strategy in supporting education-based disaster risk reduction efforts (3).

The implementation method used a participatory and educational approach, actively involving students at every stage of the activity through the delivery of material, interactive discussions, and the use of learning media. This approach was chosen because contextual disaster learning that involves student participation has proven more effective in improving understanding and building a preparedness culture compared to learning that is oriented solely toward the delivery of information (5).

The activity began with coordination with the schools to arrange the schedule and technical details of implementation. This was followed by the delivery of material on basic disaster concepts, the characteristics of Mount Inerie, the potential hazards of volcanic eruption, and the mitigation and preparedness steps that must be taken before, during, and after a disaster. As a form of strengthening disaster literacy, the community service team developed educational media based on local potential, in the form of posters on mitigating an eruption of Mount Inerie and evacuation route signage installed within the school environment. In addition, the Inerie Eco-Safe Community was established as a school community identity expected to promote the sustainability of a disaster-aware culture within the school environment.

The activity was evaluated descriptively through observation of participant involvement during the education process, documentation of the activity's implementation, and identification of the achievement of program outputs, namely the availability of educational media, the installation of evacuation route signage, and the establishment of the Inerie Eco-Safe Community as a platform for strengthening disaster literacy in the Golewa District Primary School Cluster.

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RESULTS AND DISCUSSION

This community service program was carried out in the Golewa District Primary School Cluster, consisting of SD Malanuza, SD Koeloda, and SD Rutosoro, involving 150 students. The activity was designed to strengthen disaster literacy through a community-based approach that integrates disaster education, the development of learning media based on local potential, the provision of preparedness support facilities, and the establishment of the Inerie Eco-Safe Community as a platform for the program's sustainability. This approach is expected to improve students' understanding of the various disaster threats that may occur in Golewa District while also building a disaster-aware culture within the school environment.

Disaster literacy education based on local potential

The initial stage of the activity consisted of delivering material on the various types of disasters that could potentially occur in Golewa District, including earthquakes, volcanic eruptions, landslides, and land fires, as well as the mitigation steps that need to be taken before, during, and after a disaster occurs. The material was delivered interactively through presentations, discussions, and question-and-answer sessions so that students could actively participate throughout the learning process. Figure 1 shows disaster literacy education for primary school students through interactive learning on various types of disasters.

Figure 1. Disaster literacy education for primary school students through interactive learning on multi-hazard disaster mitigation

Source: Documentation of the community service activity, 2026

This educational activity was designed to build students' basic understanding of various disaster threats while also fostering awareness of the importance of preparedness from school age. Material linked to the surrounding environmental conditions made it easier for students to understand the forms of threats, their causes, and mitigation measures relevant to daily life. In line with the view of (6), disaster education is an important part of building community capacity because it can improve knowledge, preparedness, and decision-making ability when facing emergency conditions.

The enthusiasm of the students during the activity shows that interactive learning can increase student engagement. Discussions and question-and-answer sessions gave them space to share experiences and understanding related to disasters that had occurred in the surrounding environment. This confirms that learning is not only oriented toward the delivery of information but also encourages the formation of preparedness awareness from an early age.

The approach used is in line with the concept of Disaster Education, which positions schools as the main medium for building a disaster-aware culture through a continuous learning process. Disaster education does not only focus on knowledge, but also on shaping attitudes, skills, and adaptive behavior so that students are able to face various threats in their environment (7)

In addition to strengthening understanding of the types of disasters, this activity also opened up space for students to discuss and exchange experiences about the conditions of their environment. This participatory interaction created a more active learning atmosphere, so that students not only received information but also internalized the importance of preparedness as part of the school culture. This is in line with the recommendation of (8), which emphasizes that disaster risk reduction education in schools needs to be developed through an all-hazard and all-risk, so that students have the ability to face various threats that may occur in their region.

Development of School Preparedness Facilities

In addition to the educational activities, the community service program also produced evacuation route signage installed at several strategic points within the school environment. The evacuation routes were installed as a preparedness support facility to help students recognize the direction to safety in the event of an emergency. This facility is expected to increase students' awareness of the importance of evacuation procedures while also serving as a learning medium that can be used sustainably by the entire school community. Figure 2 shows the school evacuation route signage installed at SD Koeloda.

Figure 2. Evacuation route signage in the school environment
Source: Documentation of the community service activity, 2026

The provision of evacuation routes is one form of implementing disaster education within the school environment. This facility not only functions as a directional guide during an emergency, but also serves as a learning medium that introduces rescue procedures to students from an early age. (8) explains that a disaster-safe school is determined not only by educational activities, but also supported by the availability of a safe learning environment and preparedness facilities that can be used by the entire school community.

The presence of evacuation routes at partner schools also supports the implementation of the Disaster-Safe Education Unit (SPAB), which emphasizes the importance of integrating disaster education, school disaster management, and the provision of preparedness support facilities. Evaluations of SPAB implementation in Indonesia show that although some schools already have facilities that support safety, the aspects of disaster risk reduction education and disaster management in schools still require continuous strengthening. Therefore, the provision of evacuation routes is one simple yet important step in supporting the creation of a school environment that is better prepared to face various disaster threats (9)

Through the installation of evacuation routes, students not only gained knowledge about disaster mitigation concepts, but also directly recognized the rescue route to be used in the event of an emergency. This facility is expected to support the habituation of a disaster-aware culture within the school environment, so that the learning process regarding mitigation does not stop at the delivery of material but is also realized in the form of a safer learning environment that is prepared to face disasters.

Formation of the Inerie Eco-Safe Community

One of the important outcomes of this community service activity was the establishment of the Inerie Eco-Safe Community as a school-based disaster literacy community. This community was formed through the involvement of teachers and students as a form of shared commitment to developing a disaster-aware culture within the school environment. The community is expected to serve as a platform for students to continue learning, share knowledge, and participate in various activities that support preparedness for various disaster threats. Figure 3 shows documentation of the Inerie Eco-Safe Community as a school-based disaster literacy community in Golewa District.

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Figure 3. Formation of the Inerie Eco-Safe Community as a school-based disaster literacy community in Golewa District

Source: Documentation of the community service activity, 2026

The formation of the community is one of the efforts to maintain the sustainability of the program after the community service activity has ended. Educational activities carried out periodically through the community are expected to build students' care for the environment while also strengthening habits in practicing disaster-aware behavior. Thus, disaster education does not only take place during outreach activities but becomes part of ongoing school activities.

According to (10), community resilience (community resilience) is built through a process of collective learning, collaboration, and active community participation in reducing disaster risk. The involvement of various parties within a community will strengthen the capacity to learn from experience, increase awareness of risk, and encourage behavioral change toward a more disaster-resilient society.

The formation of the Inerie Eco-Safe Community also supports the strengthening of a disaster-aware culture within the school environment. Through this community, teachers and students have space to continue various disaster education activities so that the benefits of the program do not stop after the community service ends. The community is expected to be a form of strengthening school capacity in building a learning environment that is better prepared to face various disaster threats while also fostering students' awareness of the importance of continuous disaster risk reduction.

Overall, the series of community service activities including disaster literacy education, the installation of evacuation route signage, and the formation of the Inerie Eco-Safe Community complement one another in supporting the strengthening of disaster preparedness within the primary school environment. Education provides an understanding of various disaster threats and their mitigation measures, while the evacuation route signage helps students directly recognize rescue procedures within the school environment. The formation of the Inerie Eco-Safe Community then becomes an effort to maintain the sustainability of the program through the active involvement of teachers and students, so that disaster education can continue to develop as part of the school culture.

An approach that integrates disaster learning, the provision of support facilities, and school community participation is one strategy that can strengthen preparedness sustainably. Toyoda et al. (11) asserts that disaster education will be more effective when supported by community spaces and social networks that encourage collective learning and collaboration among school members in disaster risk reduction activities. Thus, this community service activity not only provides knowledge to students, but also builds a learning environment that supports the growth of a disaster-aware culture in the Golewa District Primary School Cluster.

CONCLUSION

The community service activity through the Inerie Eco-Safe Community successfully supported the strengthening of disaster literacy among primary school students in Golewa District through three main activities, namely disaster education, the installation of evacuation route signage, and the establishment of a school-based disaster literacy community. This series of activities not only improved students' understanding of various disaster threats and their mitigation measures, but also provided preparedness support facilities and encouraged the active participation of teachers and students in building a disaster-aware culture within the school environment. The presence of the Inerie Eco-Safe Community is expected to serve as a platform for maintaining the sustainability of disaster literacy activities so that disaster risk reduction efforts can continue to be developed as part of school activities.

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