

Sutarman^{1*}
Arfiani Yulianti Fiyul²
Neneng Sulastri³

School-Based Earthquake Emergency Response Education in Bekasi

Abstract

Although Bekasi is not classified as an area with high earthquake frequency, it remains vulnerable to the impacts of fault shifts and regional seismic activity. Low awareness and limited knowledge among the community particularly students regarding earthquake emergency response procedures can increase the risk of casualties and losses when disasters occur. This community service program aimed to enhance the preparedness of students and teachers through school-based earthquake emergency response education. The implementation methods included disaster awareness sessions, evacuation procedure training, emergency response simulations, and the establishment of evacuation routes within school environments. The program was conducted in several primary and secondary schools in the Bekasi area, involving school stakeholders, the Regional Disaster Management Agency (BPBD), and disaster relief volunteers. The results showed an 85% improvement in students' understanding of self-rescue steps, along with the formation of school disaster response teams capable of executing evacuation procedures. This initiative is expected to serve as a sustainable education model that can be adopted by other schools in Bekasi to minimize the impact of future earthquakes.

Keywords: Emergency Response Education, Earthquake, School-Based, Bekasi

1. Introduction

Earthquakes are natural hazards that can occur at any time without sufficient early warning to mitigate their effects. While Bekasi is not categorized as a high-risk earthquake zone—such as the southern coastal regions of Java or Sumatra the seismic activity around West Java, including the potential movement of active faults, still poses risks to the community. Earthquakes that have been felt in Bekasi in recent years demonstrate that the area can be affected both directly and indirectly. (Lina, 2025)

^{1*} Universitas Islam Syekh Yusuf, Tangerang, Indonesia, Email : sutarman@unis.ac.id

² Universitas Islam Syekh Yusuf, Tangerang, Indonesia, Email: arfiani.yuliant@unis.ac.id

³ Universitas Islam Nusantara Bandung, Indonesia, Email: nenengsulastri@uninus.ac.id





Figure 1. Damaged Building
(Source: CNN Indonesia)

One of the main challenges in disaster mitigation is the low level of knowledge and awareness among the public particularly students regarding earthquake emergency response procedures. Schools, as places where large numbers of people, especially children, gather, face a high level of risk if they do not have an effective preparedness system in place. Many schools still lack clearly designated evacuation routes, trained disaster response teams, and standardized operating procedures (SOPs) for earthquake handling. This condition can potentially increase the number of casualties and the extent of losses when a disaster occurs.(Sutarman, 2025)

School-based earthquake emergency education serves as a strategic solution to fostering a culture of preparedness from an early age. Through disaster education, evacuation training, and emergency response simulations, both students and teachers can learn to take swift, accurate, and safe self-rescue measures. The implementation of this program in schools across the Bekasi region is expected not only to improve individual preparedness but also to establish an integrated emergency response system that connects schools, local governments, and the wider community.(Dewanto, 2025)



Figure 2. House Destroyed by the Earthquake
(Source: Kompas.com)

Given this background, it is essential to implement a structured and sustainable school-based earthquake emergency preparedness education program that involves multiple stakeholders. Such efforts can effectively minimize the potential impacts of earthquakes in the Bekasi region.(Ignatius, 2025)

2. Theoretical Framework

2.1. Earthquake Disaster Concept

According to Law Number 24 of 2007 on Disaster Management, a disaster is an event or series of events that threatens and disrupts the life of a community, caused by natural, non-natural, or human factors. An earthquake is a vibration or shaking of the Earth's surface caused by the movement of rock layers beneath the surface.(Khaerudin, 2023)

Earthquakes can occur without early warning and cause significant damage, both in terms of infrastructure and the environment, as well as human casualties. Therefore, knowledge and preparedness in facing earthquakes are crucial, especially in high-risk areas.(Triyono et al., 2025)

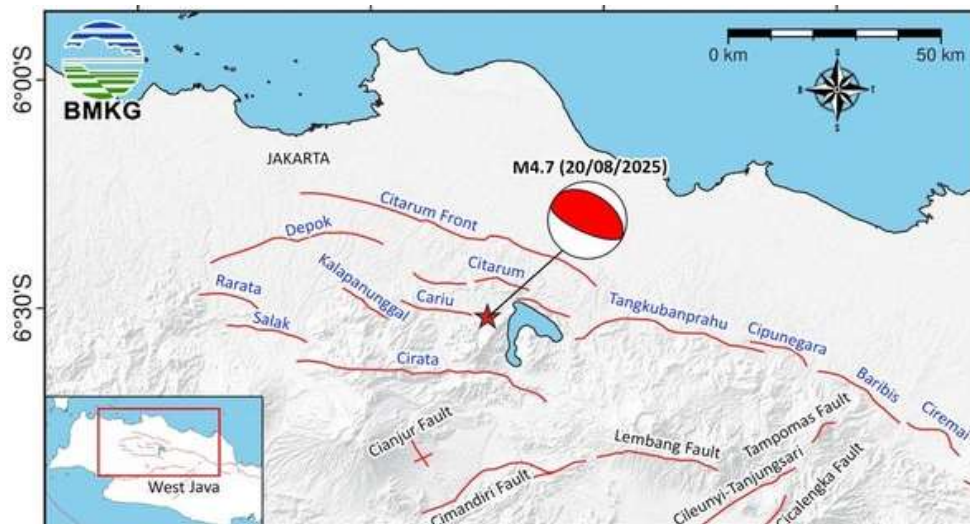


Figure 3. Bekasi Earthquake Epicenter

(Source: Detik News - DetikCom)

2.2. Disaster Emergency Response Education

Disaster emergency response education is the process of delivering knowledge, skills, and attitudes to individuals or groups to enable them to act quickly, accurately, and safely when a disaster occurs. According to the *International Strategy for Disaster Reduction (ISDR)*, disaster education should integrate preparedness materials into the school curriculum as well as practical learning activities.(Fitriyani et al., 2025)

2.3. The Role of Schools in Earthquake Preparedness

Schools play a strategic role as disaster education centers due to their clear organizational structure, trained human resources, and capacity to deliver information systematically. Several roles of schools include:

- a. Integrating disaster-related materials into classroom lessons.
- b. Conducting regular evacuation drills.

- c. Involving teachers, students, and parents in disaster contingency planning.(Karapa & Yonas, 2025)

2.4. School Community Preparedness and Participation

According to LIPI–UNESCO/ISDR (2006), preparedness indicators include:

- a. **Knowledge and attitudes toward risk:** Understanding earthquake hazards and ways to minimize risks.
- b. **Emergency planning:** Developing evacuation procedures and assembly points.
- c. **Early warning systems:** Establishing rapid communication mechanisms during a disaster.
- d. **Resource mobilization:** Providing facilities and infrastructure for emergency response.(Hendrawan et al., 2024)

2.5. Conceptual Framework

Although Bekasi is not a region with a high earthquake frequency like those in subduction zones, it still has the potential to be affected by earthquakes due to regional tectonic activity or distant earthquake impacts. Low levels of knowledge among students and educators regarding emergency response procedures can increase the risk of casualties if an earthquake occurs during school hours.(Sutarman et al., 2019)

Therefore, **School-Based Earthquake Emergency Response Education** can be an effective strategy to:

- a. Increase risk awareness.
- b. Equip individuals with practical evacuation skills.
- c. Minimize casualties and material losses.

This conceptual framework connects:

- a. The level of knowledge (teachers & students) about earthquakes.
- b. The implementation of education and simulation programs.
- c. The improvement of school disaster preparedness.(Maliki, 2021)

3. Method

3.1. Activity Approach

This program adopts a participatory approach that involves all school components, including the principal, teachers, students, educational staff, and the school committee. This approach ensures that all parties actively engage in the planning, implementation, and evaluation stages of the program.(Rahmanu & Hadmoko, 2021)

In addition, a simulation-based learning method is applied to provide real-life experiences in responding to earthquake emergency situations.

3.2. Stages of Activity Implementation

Stage 1 – Preparation

- a. Initial Survey – Identifying target schools in the Bekasi area that are at potential risk of earthquakes and have low emergency preparedness.
- b. Coordination with Stakeholders – Collaborating with the Education Office, Regional Disaster Management Agency (BPBD), and school authorities.

- c. Module Development – Preparing an educational module containing basic earthquake information, emergency response procedures, and school evacuation SOPs.
- d. Provision of Equipment – Supplying whistles, evacuation vests, evacuation route maps, and educational media (posters, educational videos).(Fedryansyah et al., 2018)

Stage 2 – Implementation of Education

- a. Socialization: Delivering basic earthquake materials, including causes, impacts, and the importance of preparedness.
- b. Teacher & Education Staff Training: Providing materials on self-rescue procedures, evacuation coordination, and first aid (P3K).
- c. Student Education: Utilizing interactive media such as animated videos, leaflets, and educational games (edugames).
- d. Evacuation Simulation: Conducting hands-on earthquake evacuation drills based on scenarios, involving the entire school community.(Nursyabani et al., 2020)

Stage 3 – Evaluation and Assistance

- a. Observation of Simulation Implementation: Using an earthquake preparedness assessment instrument (evacuation checklist).
- b. Joint Reflection: Discussing strengths and weaknesses of the simulation implementation.
- c. Improvement Recommendations: Adjusting evacuation routes, adding assembly points, or revising the school’s SOP.
- d. Ongoing Assistance: Monitoring for at least one month after implementation to ensure the plan is being applied effectively.(Dirga & Djafar, 2023)



Figure 4: BMKG Officers Identifying an Earthquake
(Source: Tirto.id)

Methods of Material Delivery

- a. Interactive Lecture: To present theories and basic concepts.
- b. Group Discussion: To discuss strategies and the role of each party during an earthquake.
- c. Field Simulation: To provide real-life emergency evacuation experience.

- d. Learning Media: PowerPoint presentations, educational videos, booklets, and evacuation route posters.(Dirga & Djafar, 2023)

Indicators of Success

- a. Increased Knowledge: At least 80% of participants understand earthquake emergency response procedures.
- b. Evacuation Skills: Evacuation time is less than 3 minutes according to BPBD standards.
- c. Availability of an Emergency Response SOP at the school.
- d. Improved School Preparedness based on BPBD assessment instruments.(Monalia & Noorratri, 2024)

3.3. Conceptual Model Framework

Main Concept: School-based earthquake emergency response education focuses on improving the knowledge, skills, and preparedness of students, teachers, and school staff to face earthquake disasters.(Hartono et al., 2021)

Key Components in the Conceptual Model: Input

- a. Earthquake risk and potential hazard data in Bekasi.
- b. Resources (facilitators, educational modules, simulation tools, emergency response SOPs).
- c. School participation (principals, teachers, students).(Qothrunnada et al., 2022)

Table 1. Implementation Schedule Plan

Activity Stages	Week 1	Week 2	Week 3	Week 4
Survey and Coordination	✓			
Module Development and Media Preparation	✓	✓		
Education & Simulation Implementation		✓	✓	
Evaluation & Mentoring			✓	✓

(Table content to be added based on the agreed timeline.)

Process

- a. Dissemination and education on earthquake-related materials.
- b. Evacuation simulation training.
- c. Development of school emergency response SOPs.
- d. Preparedness evaluation (pre-test and post-test).(Abbas et al., 2022)

Output

- a. Increased knowledge and skills of students and teachers.
- b. Availability of school emergency response SOPs.
- c. Regular implementation of earthquake drills.

Outcome

- a. Enhanced school preparedness for earthquake disasters.
- b. Establishment of a disaster preparedness culture within the school environment.

Impact

- a. Reduced risk of casualties and losses during an earthquake.

- b. A resilient and disaster-ready school community.(Zakaria, 2011)

3.4. Conceptual Model Overview

[Input] → [Education & Training Process] → [Output] → [Outcome] → [Impact]

- a. Input: Risk data, human resources, visual aids, modules.
- b. Process: Dissemination, training, simulation, SOP development.
- c. Output: Improved knowledge, SOP availability, routine simulations.
- d. Outcome: Increased school preparedness.
- e. Impact: Reduced casualties, established preparedness culture.(Saputra & Wulandari, 2025)

Implementation Flowchart Stage: Preparation

- a. Coordination with schools and the Bekasi Disaster Management Agency (BPBD).
- b. Development of educational materials and simulation SOPs.(Jayatri et al., 2024)

Stage: Implementation

- a. Dissemination of earthquake emergency response materials.
- b. Training on evacuation and safety equipment usage.
- c. Earthquake simulation involving students and teachers.

Stage: Evaluation

- a. Pre-test and post-test of students' and teachers' knowledge.
- b. Evaluation of simulation effectiveness.(Fitri et al., 2022)

Stage: Follow-Up

- a. Refinement of SOPs.
- b. Recommendations for routine activities.
- c. Periodic monitoring.

4. Results

The *School-Based Earthquake Emergency Preparedness Education Program* in Bekasi was implemented in several elementary and secondary schools located in earthquake-prone areas of Bekasi Regency and City. The outcomes of the program can be categorized into the following aspects:(Purnamasari et al., 2025)

4.1. Improvement in Students' Knowledge

- a. Based on pre-test and post-test results, the average student comprehension score increased from 56.4 to 87.2, representing a 54.6% improvement.
- b. Students were able to explain self-rescue procedures during an earthquake, including *drop, cover, and hold on*, evacuation to assembly points, and emergency aid procedures.
- c. A total of 92% of students were able to identify safe zones and evacuation routes within their schools.

Enhancement of Practical Skills

- a. Through earthquake drills, students were able to practice emergency response procedures in a timely manner, with the average evacuation duration reduced from 3 minutes 45 seconds to 2 minutes 10 seconds.

- b. Teachers and school staff successfully led evacuation processes in accordance with SOPs, without excessive panic.
- c. The establishment of a School Disaster Preparedness Team consisting of students, teachers, and school staff.(Putu Putra, 2024)

Strengthening the Role of Teachers and School Staff

- a. Teachers received written guidelines and earthquake education modules that can be incorporated into regular learning activities.
- b. 85% of teachers reported increased confidence in delivering disaster education to students.
- c. Schools now have evacuation route maps and emergency equipment lists displayed in strategic areas.(Marpaung & Sudharmono, 2024)

4.2. Impact on School Preparedness

- a. A WhatsApp-based emergency communication system was established, involving teachers, parents, and local authorities.
- b. Some schools integrated disaster preparedness materials into extracurricular scouting activities.
- c. Increased student awareness led to initiatives encouraging their families to conduct earthquake drills at home.(Marpaung & Sudharmono, 2024)

Participant Feedback

- a. Based on questionnaires, 94% of students found the activity beneficial and enjoyable.
- b. 88% of parents stated that earthquake education at school helped their children become more prepared for disasters.
- c. Participants suggested that drills be conducted regularly, at least twice a year.

5. Discussion

The implementation of the *School-Based Earthquake Emergency Preparedness Education Program* in Bekasi plays a crucial role, considering that although the area does not have seismic activity as high as southern West Java or Sumatra, it remains vulnerable to the impacts of earthquakes originating from nearby megathrust zones and active faults. The high population density and intense activity in school environments make disaster preparedness a priority in risk mitigation efforts.(Aprianti et al., 2023)

5.1. Initial School Preparedness Condition

Preliminary observations revealed that most schools in Bekasi did not yet have standardized procedures for earthquake emergency response.

- a. Limited knowledge among teachers and students regarding early signs of earthquakes, evacuation procedures, and designated safe assembly points.
- b. The absence of regular drills led to spontaneous and potentially risky responses during emergencies.
- c. Lack of infrastructure such as evacuation routes and maps of assembly points in many schools.

This situation underscores the urgent need for structured and continuous educational interventions.(Atmojo & Muhandis, 2019)

5.2. Program Implementation

The education program adopted a participatory and hands-on approach, consisting of:

- a. **Theoretical Instruction** – Introducing basic earthquake concepts, causes, impacts, and the *Drop, Cover, and Hold On* principle. Materials were delivered through visual aids, animations, and earthquake simulation videos to enhance understanding.
- b. **Evacuation Training** – Practicing evacuation routes and identifying safe assembly points with the participation of the entire school community. Teachers and students were trained to identify the fastest and safest evacuation paths.
- c. **Formation of the School Disaster Preparedness Team (SDPT)** – Comprising representatives from teachers, students, administrative staff, and school security personnel, trained to serve as coordinators during emergencies.
- d. **Facility Enhancement** – Installation of evacuation signs, maps of evacuation routes, and provision of first aid kits at strategic points.(Silviani et al., 2022)

5.3. Improvement in Knowledge and Skills

Post-program evaluation demonstrated a significant increase in knowledge among both students and teachers.

- a. Average pre-test score: 48% (*poor* category).
- b. Average post-test score: 86% (*good* category).
- c. Participants were able to clearly explain emergency response steps and conduct evacuation drills more quickly and systematically.

Furthermore, the development of self-confidence and collective awareness within the school environment has become an essential foundation for disaster preparedness.(Suara et al., 2023)

5.4. Challenges Encountered

Despite the program's success, several obstacles were noted:

- a. Limited implementation time due to the tight academic schedule.
- b. Budget constraints in procuring comprehensive safety equipment.
- c. Variation in participants' comprehension levels, particularly among lower-grade students who require simpler educational approaches.(Sumari et al., 2016)

5.5. Positive Program Impacts

The program generated positive effects on both individual and institutional levels, including:

- a. Increased school preparedness for potential earthquakes.
- b. Development of a disaster-aware culture among students and teachers.
- c. Reduction in potential panic during disasters.
- d. Strengthening of collaboration among school community members in emergency situations.(Prasetio et al., 2023)

5.6. Implications for Disaster Mitigation in Bekasi

The success of this program provides a model that can be replicated in other schools across Bekasi. If implemented sustainably and integrated into the local curriculum or extracurricular activities, disaster preparedness levels in densely populated urban areas could be significantly enhanced. (Akbar et al., 2018)

6. Conclusion and Recommendations

6.1. Conclusion

Based on the implementation of the School-Based Earthquake Emergency Education Program in the Bekasi area, the following conclusions can be drawn:

- a. **Increased Knowledge and Awareness:** The program successfully enhanced the knowledge of students, teachers, and school staff regarding earthquake warning signs, potential impacts, and self-rescue measures. Participants gained a clear understanding of evacuation procedures, designated safe assembly points, and the roles of each individual in an emergency situation.
- b. **Improved School Preparedness:** Following the training, schools established a more structured preparedness system, including a written evacuation plan, clearly marked evacuation routes, and the appointment of a school emergency response team.
- c. **Enhanced Practical Skills through Simulation:** Through earthquake drill simulations, students and teachers became more adept at responding quickly and appropriately during disasters. Simulations also helped minimize the potential for panic.
- d. **Collaboration and Active Participation:** The program encouraged the involvement of all stakeholders, including schools, parents, and local authorities. This collaboration strengthened the support network for disaster management.
- e. **Importance of Program Continuity:** Emergency preparedness education should not be a one-time effort. Continuous programs, regular updates, and routine drills are essential to maintain a high level of readiness.

6.2. Recommendations

- a. **Conduct Regular Simulations:** Schools should conduct earthquake emergency drills at least twice a year to ensure that students and teachers remain well-trained in emergency situations.
- b. **Develop Learning Modules and Media:** Multimedia-based learning materials (videos, animations, and infographics) should be developed to facilitate students' understanding of emergency preparedness.
- c. **Collaborate with BPBD and Related Agencies:** Schools are encouraged to partner with the Bekasi Regional Disaster Management Agency (BPBD) and other disaster-related organizations for updated information and capacity-building initiatives.
- d. **Integrate into the School Curriculum:** Disaster education content should be integrated into local curriculum subjects or extracurricular activities so that students receive consistent learning on the topic.
- e. **Improve Facilities and Infrastructure:** Local governments and schools should provide supporting facilities such as early warning systems, safe evacuation routes, and first aid (P3K) equipment.
- f. **Engage Parents and the Community:** Emergency preparedness education should also involve parents and the surrounding community to ensure broader and more coordinated readiness.

Reference

- Abbas, H. H., Nurbaeti, & Andi Asrina. (2022). Mitigasi Bencana Gempa Bumi dengan Metode Learning by Doing. *Window of Health : Jurnal Kesehatan*, 475–485. <https://doi.org/10.33096/woh.vi.139>
- Akbar, R., Darman, R., Namora, J., & Ardewati, N. (2018). *Implementasi Business Intelligence Menentukan Daerah Rawan Gempa Bumi di Indonesia dengan Fitur Geolokasi*. 4(1). <https://jurnal.untan.ac.id/index.php/jepin/article/view/25518/75676577005>
- Aprianti, R., Khoirotn Nadiyah, Zakirman, Widiasih, Heni Safitri, & Tuti Purwoningsih. (2023). Peningkatan Pengetahuan Mengenai Mitigasi Bencana Gempa Bumi di Cianjur. *Jurnal Inovasi Pengabdian Masyarakat Pendidikan*, 4(1), 138–150. <https://doi.org/10.33369/jurnalinovasi.v4i1.28882>
- Atmojo, S., & Muhandis, I. (2019). *SISTEM INFORMASI GEOGRAFIS BENCANAGEMPABUMI DENGAN PENDEKATAN PGAUNTUK MITIGASI BENCANA*. 6(1).
- Dewanto, J. (2025). Community Empowerment and Student Work Together To Develop Cikoneng Village, Tangerang Regency. *The International Journal of Education Management and Sociology*, 4(4). <https://www.ijems.id/index.php/ijems/article/view/239/209>
- Dirga, A. S., & Djafar, T. (2023). IMPLEMENTASI PENANGGULANGAN BENCANA STUDI KASUS NAGARI SIAGA BENCANA (NAGASINA) DI NAGARI GANGGO HILIA KECAMATAN BONJOL KABUPATEN PASAMAN. *Jurnal Pemerintahan Dan Keamanan Publik (JP dan KP)*, 106–122. <https://doi.org/10.33701/jpkp.v5i2.3777>
- Fedryansyah, M., Pancasilawan, R., & Ishartono, I. (2018). PENGANGGULANGAN BENCANA DI MASYARAKAT DESA STUDI DI DESA CIPACING, DESA CILELES, DAN DESA CIKERUH KECAMATAN JATINANGOR KABUPATEN SUMEDANG. *Share : Social Work Journal*, 8(1), 11. <https://doi.org/10.24198/share.v8i1.15961>
- Fitri, S. N., Pradana, E. W., Rifai, M., & Septiariva, I. Y. (2022). Peningkatan pengetahuan masyarakat tetang mitigasi bencana gempa bumi di Desa Tohudan, Karanganyar. *Matriks Teknik Sipil*, 10(2), 84. <https://doi.org/10.20961/mateksi.v10i2.55597>
- Fitriyani, F., Ersila, W., & Chabibah, N. (2025). Pemanfaatan Sampah Menjadi Bahan Pangan Melalui Pendampingan Kader Nasyyatul Aisyiyah Kabupaten Pekalongan Jawa Tengah. *Jurnal Pengabdian Masyarakat Indonesia*, 5(3), 643–651. <https://doi.org/10.52436/1.jpmi.3685>
- Hartono, D., Khoirudin Apriyadi, R., Winugroho, T., Aprilyanto, A., Hadi Sumantri, S., Wilopo, W., & Surya Islami, H. (2021). Analisis Sejarah, Dampak, Dan Penanggulangan Bencana Gempa Bumi Pada Saat Pandemi Covid-19 Di Sulawesi Barat. *PENDIPA Journal of Science Education*, 5(2), 218–224. <https://doi.org/10.33369/pendipa.5.2.218-224>
- Hendrawan, R. N., Hilman, Z., Widiatama, A. J., Al Farishi, B., Zainuddin, A. D., & Ayunda, M. (2024). Kerentanan dan Kapasitas Kabupaten Lampung Selatan dalam Menghadapi Ancaman Bencana. *Jurnal Pengabdian Masyarakat Indonesia*, 4(3), 505–512. <https://doi.org/10.52436/1.jpmi.2179>
- Ignatius, D. (2025). Community Empowerment through Hydroponic Vegetable Farming in Pematang Village, Tigaraksa District, Tangerang Regency. *The International*

Jayatri, A. U., Inayah, R., Aminy, I. U. A., Kurniawidi, D. W., Saputra, K., Ardianto, T., & Fortuna, G. A. D. (2024). EDUKASI MITIGASI BENCANA GEMPA BUMI DI SMAN 2 SELONG, LOMBOK TIMUR. *Jurnal Warta Desa (JWD)*, 6(3), 140–147. <https://doi.org/10.29303/jwd.v6i3.308>

Karapa, E., & Yonas, M. N. (2025). Sosialisasi Mitigasi Bencana Gempa Bumi di Kampung Neirawar Kabupaten Sarmi Provinsi Papua. *Jurnal Pengabdian Masyarakat Indonesia*, 5(1), 33–40. <https://doi.org/10.52436/1.jpmi.3351>

Khaerudin. (2023). *Community Service for Cianjur Earthquake Victims Through Education and Empowerment*. <https://doi.org/10.58818/ijems.v2i1.26>.
<https://www.ijems.id/index.php/ijems/article/view/26/23>

Lina, S. (2025). Increasing Environmental Awareness and Early Response to Landslide Disasters in Hilly Slope Areas (Pasirmunjul Village, Sukatani District, Purwakarta). *The International Journal of Education Management and Sociology*, 4(4). <https://www.ijems.id/index.php/ijems/article/view/232/204>

Maliki, R. Z. (2021). *Pemetaan Bahaya Banjir di Kecamatan Baolan Kabupaten Tolitoli Provinsi Sulawesi Tengah*. 12(1).
<https://jdpb.bnpb.go.id/index.php/jurnal/article/view/195/165>

Marpaung, O. S., & Sudharmono, U. (2024). *ANALISIS KESIAPSIAGAAN BENCANA GEMPA BUMI MAHASISWA UNIVERSITAS ADVENT INDONESIA*. 6(6).
<https://jurnal.globalhealthsciencegroup.com/index.php/JPPP/article/view/4802/3431>

Monalia, I., & Noorratri, E. D. (2024). *GAMBARAN TINGKAT PENGETAHUAN MASYARAKAT TENTANG KESIAPSIAGAAN DALAM MENGHADAPI BENCANA GUNUNG MELETUS DI DESA JRAKAHSELO BOYOLALI*. 2(4).

Nursyabani, N., Putera, R. E., & Kusdarini, K. (2020). Mitigasi Bencana Dalam Peningkatan Kewaspadaan Terhadap Ancaman Gempa Bumi Di Universitas Andalas. *Jurnal Ilmu Administrasi Negara ASIAN (Asosiasi Ilmuwan Administrasi Negara)*, 8(2), 81–90. <https://doi.org/10.47828/jianaasian.v8i2.12>

Prasetio, A., Effendi, M. M., & Dwi M, M. N. (2023). Analisis Gempa Bumi Di Indonesia Dengan Metode Clustering. *Bulletin of Information Technology (BIT)*, 4(3), 338–343. <https://doi.org/10.47065/bit.v4i3.820>

Purnamasari, D. I., Boroallo, R. P., & Nafisyah, I. (2025). *Sosialisasi Bencana Gempa Bumi Dan Tsunami Serta Mitigasinya di SDN Baloroo*. 5(1).
<https://doi.org/10.34697/jai.v5i1.1242>

Putu Putra, W. S. Y. (2024). *Mitigasi Bencana Gempa Bumi dengan Integrasi Analisis Geofisika dan Data Mining*. <https://doi.org/10.37905/geojpg.v3i2.24971>

Qothrunnada, N. H., Utami, R. Y., & Rizky, S. A. (2022). *MENGANALISIS BENCANA ALAM GEMPA BUMI DALAM PERSPEKTIF AL-QURAN*. 4, 257–260.

Rahmanu, Y., & Hadmoko, D. (2021). *Tingkat Kerentanan Fisik Bangunan terhadap Potensi Erupsi Gunungapi Kelud*. 12(1).
<https://jdpb.bnpb.go.id/index.php/jurnal/article/view/182/168>

Saputra, R. J., & Wulandari, W. (2025). *MITIGASI BENCANA GEMPA BUMI OLEH BADAN PENANGGULANGAN BENCANA DAERAH GUNA MENGURANGI RISIKO BENCANA AKIBAT SESAR LEMBANG DI KECAMATAN CISARUA KABUPATEN BANDUNG BARAT*. 2(1).

Silviani, Y. E., Fitriani, D., & Regita, R. (2022). HUBUNGAN PENGALAMAN BENCANA DENGAN KESIAPSIAGAAN IBU HAMIL MENGHADAPI ANCAMAN BENCANA GEMPA BUMI. *Jurnal Sains Kesehatan*, 29(1), 55–62. <https://doi.org/10.37638/jsk.29.1.55-62>

Suara, M., Jati, B. L., Ghufro, A., Hilmani, H., Helmalia, H., Fitri, N. L., & Andhia, A. (2023). Penanganan Dampak H + 14 Pasca Bencana Gempa Bumi dengan Masalah Kesehatan di Desa Mangun Kerta Kecamatan Cugenang Kabupaten Cianjur. *Jurnal Kreativitas Pengabdian Kepada Masyarakat (PKM)*, 6(4), 1396–1411. <https://doi.org/10.33024/jkpm.v6i4.8946>

Sumari, A. D. W., Nugroho, S. P., & Addin, T. N. (2016). PENGURANGAN RISIKO BENCANA GEMPA BUMI-TSUNAMI DI PANGKALAN TNI AU PADANG AKIBAT MEGATHRUST MENTAWAI. *Jurnal Pertahanan & Bela Negara*, 6(1). <https://doi.org/10.33172/jpbh.v6i1.304>

Sutarman. (2025). Enhancing Community Resilience in Facing Landslide Hazards through Education and Mitigation in Pasirmunjul Village, Sukatani District, Purwakarta. *The International Journal of Education Management and Sociology*, 4(4). <https://www.ijems.id/index.php/ijems/article/view/226/201>

Sutarman, S., Yuniarsih, Y., & Herlina, M. G. (2019). Pemberdayaan Masyarakat Korban Tsunami Selat Sunda Kampung Nelayan Teluk Labuan Banten. *LOYALITAS, Jurnal Pengabdian Kepada Masyarakat*, 2(2), 134. <https://doi.org/10.30739/loyal.v2i2.488>

Triyono, T., Zahra Hasan, N., Kusuma Dewi, I., Susanti, S., Sulistianingsih, D., & Rama Devara, H. (2025). Inovasi Desain Rumah Apung Sebagai Solusi Adaptif Penanggulangan Banjir Rob Di Permukiman Pesisir Kelurahan Karang Sari Kabupaten Kendal Provinsi Jawa Tengah. *Jurnal Pengabdian Masyarakat Indonesia*, 5(3), 540–551. <https://doi.org/10.52436/1.jpmi.3471>

Zakaria, Z. (2011). IDENTIFIKASI DAN MITIGASI PADA ZONA RAWAN GEMPA BUMI DI JAWA BARAT. *Bulletin of Scientific Contribution*, 9(1).