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# LOCAL KNOWLEDGE OF DISASTER MITIGATION IN THE TRADITIONAL *UMEAK AN* HOUSE OF REJANG TRIBE IN BENGKULU

**Aprianto Soni, Mirna Yunita, Muhammad Alfi, Etika Sihaini, Anggun Dwi Utami**
Geography Education Study Program, Universitas Prof. Dr. Hazairin, SH Bengkulu
e-mail: aprianto1488@gmail.com

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***Abstract***
*Bengkulu Province is situated within a high-risk zone necessitated by plate subduction activity and the permanent presence of the Semangko Fault. Amidst such persistent seismic threats, the local population exhibits a tendency to transition toward rigid concrete structures which are susceptible to collapse while simultaneously abandoning resilient traditional architecture. This qualitative study employs a descriptive analytical method to examine the local wisdom of disaster mitigation embodied in the traditional dwellings of the Rejang Tribe known as Umeak An as a model for adaptive housing. The research was conducted in North Bengkulu Regency specifically within the Arga Makmur and Arma Jaya Districts. Primary data were gathered through direct technical observations and in-depth interviews with four key informants comprising two community leaders one tribal elder of the Rejang community and a tribal chief. The information was processed using comparative descriptive techniques oriented toward value discovery to synchronize empirical realities with modern engineering parameters. Findings demonstrate that Umeak An possesses engineering superiority through its non-nailed joint system or papurus and an elastic stilt structure that functions as a dynamic damper. This study concludes the imperative of integrating vernacular elasticity principles into modern construction regulations to achieve sustainable residential resilience.*

**Kata Kunci:**
*Umeak An;* Mitigasi Bencana; Suku Rejang; Resiliensi; Sesar Semangko

**Abstrak**
Provinsi Bengkulu berada pada zona risiko tinggi akibat aktivitas subduksi lempeng dan Sesar Semangko yang permanen. Di tengah ancaman seismik tersebut masyarakat cenderung beralih ke bangunan beton kaku yang rentan runtuh serta meninggalkan arsitektur tradisional yang resilien. Penelitian kualitatif dengan metode deskriptif analitis ini bertujuan menganalisis kearifan lokal mitigasi bencana pada rumah tradisional Suku Rejang atau yang lebih dikenal dengan *Umeak An* sebagai model hunian adaptif. Lokasi penelitian berada di Kabupaten Bengkulu Utara tepatnya di Kecamatan Arga Makmur dan Arma Jaya. Data dikumpulkan melalui observasi teknis langsung serta wawancara mendalam bersama empat informan kunci yang meliputi dua tokoh masyarakat satu tetua masyarakat Suku Rejang dan seorang kepala suku. Informasi dianalisis melalui teknik deskriptif komparatif yang berorientasi pada penemuan nilai guna mensinkronkan realitas empiris dengan parameter rekayasa modern. Temuan menunjukkan bahwa *Umeak An* memiliki keunggulan pada sistem sambungan non paku atau papurus serta struktur panggung

elastis sebagai peredam dinamis. Penelitian ini menyimpulkan pentingnya mengintegrasikan prinsip elastisitas vernakular ke dalam regulasi konstruksi modern guna mewujudkan resiliensi pemukiman berkelanjutan.

**Author Correspondence**
**Email:** aprianto1488@gmail.com
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## INTRODUCTION

Indonesia is a region located within the Ring of Fire path and the meeting point of three major tectonic plates, namely Indo-Australia, Eurasia, and the Pacific. This strategic but risky position makes Indonesia a region that is highly vulnerable to various geophysical disaster threats, especially earthquakes and tsunamis (Hadi et al., 2018; Setiawan et al., 2025; Siburian et al., 2024). In line with the definition in Law No. 24 of 2007, disasters in this region are not just ordinary natural phenomena, but a series of events that threaten the stability of life, damage the integrity of the environment, and cause a profound psychological impact on the community.

Bengkulu is specifically in the "red zone" of tectonic disasters because of its unique position. It is located just in front of the confluence zone of the Indo-Australian Plate and the Eurasian Plate in the Indian Ocean (subduction zone), as well as being traversed by the Semangko Fault system on the mainland (Hadi et al., 2018; Setiawan et al., 2025; Siburian et al., 2024). The Semangko Fault is an active fault that stretches for 1,900 km along Bukit Barisan, from Teluk Semangka in Lampung to Aceh, the existence of these active fault segments on the mainland of Bengkulu such as the Musi Segment and the Ketahun Segment causes this region to have very high seismic activity with shallow depths (Sumanjaya et al., 2024). The characteristics of land earthquakes from the Semangko Fault are often more destructive to residential areas because the shock center is close to the surface and residential areas. The regional tectonic setting is characterized by frequent seismic activity, where the accumulation of energy from the maritime subduction zone and the terrestrial Semangko Fault establishes a persistent dual threat. Given that these unpredictable energy releases often manifest in varying magnitudes, a highly adaptive building mitigation strategy is imperative to ensure long-term structural resilience.

The impact of seismic events is often not a direct result of the dynamics of ground vibration, but rather the result of a structural failure of buildings that are unable to adopt shock energy. In vulnerable areas such as Bengkulu, the massive transition from the use of natural lightweight materials to rigid materials such as concrete and brick without proper

engineering standards increases the risk of fatalities. Rigid modern buildings tend to store earthquake energy until it reaches the breaking point, which then leads to fatal collapses that pile up its inhabitants.

In the midst of the urgency of the need for resilient housing, there is a sociocultural paradox, where modern society tends to abandon the principles of local architecture that have been empirically tested for generations. Traditional architecture, which is often considered "old-fashioned" or "outdated", retains sophisticated mitigation intelligence through the use of flexible connection systems and load distribution that is adaptive to local geological characteristics. This disregard for local knowledge not only removes cultural identity but also widens the gap in people's vulnerability to repeated disasters. As a fundamental pillar in environmental protection and management through noble values that apply in the community's life (Naing & Hadi, 2020; Natsir & Rachmad, 2018). In the context of the people of Bengkulu, the Rejang Tribe has internalized this ecological mandate long before modern regulations were formed through the architectural heritage of *"Umeak An"*. Etymologically, *Umeak An* means "Old House" or "Old Model House". This naming does not simply refer to the chronology of age, but to an architectural entity that carries a blueprint of past knowledge that is still very relevant. As an "old model", *Umeak An* represents the housing standards created by the ancestors of the Rejang Tribe to adapt to natural dynamics and seismic threats in the land of Rejang.

The construction of *Umeak An* is not merely a static residential artifact but rather a manifestation of adaptive technical intelligence in responding to regional seismic hazards. Analytical observations indicate that this stilt house structure represents an active defense system, utilizing timber materials with high elasticity and a flexible joinery system that facilitates controlled structural displacement during seismic waves, thereby preventing progressive collapse. Consequently, *Umeak An* serves as empirical evidence that traditional architectural models harbor sophisticated engineering principles relevant to the development of disaster-resilient settlements in hazard-prone regions.

Despite the proven resilience of such structures, current scholarly literature has largely focused on the cultural and philosophical aspects of traditional dwellings in Bengkulu, studies specifically addressing the structural engineering and seismic performance of traditional Bengkulu houses remain significantly limited. Furthermore, there is a distinct lack of integration between vernacular architecture and modern disaster mitigation frameworks, where indigenous construction techniques are often overlooked in contemporary building regulations.

The originality of this study resides in its systematic deconstruction of the mechanical variables within the *Umeak An* disaster mitigation system through a technical engineering lens. This research transcends conventional cultural documentation by extracting specific vernacular engineering principles that have been historically validated against the seismic dynamics of the Bengkulu area. By identifying these parameters, this study aims to formulate an adaptive construction framework that can be integrated into sustainable housing policies. In an era of escalating seismic risks, this research is critical for transforming disaster management from a reactive approach to a preventive model by repositioning vernacular technology as a credible foundation for modern residential security.

## METHODS

This study employs a qualitative approach with descriptive-analytical methods to develop a systematic and in-depth picture of *Umeak An* architecture in its natural context. The researcher serves as the key instrument, interacting directly with data sources without interfering with variables, a crucial step to maintain the authenticity of findings related to local wisdom in disaster mitigation. The research location was purposively determined in North Bengkulu Regency. Geographically, the study area is located at coordinates 3°19'60.0"S 102°03'00.0"E. Data collection focused on two areas: Senali Village in Arga Makmur District and Kali Village in Arma Jaya District. The location selection was based on the presence of a population of *Umeak An* buildings that still maintain the authenticity of their materials and traditional connection systems in the midst of an active fault zone with a history of high vulnerability to seismic activity.

To ensure data depth and minimize subjectivity, this study involved four key informants selected through purposive sampling. The informants comprised cultural and technical knowledge authorities, including traditional leaders or chiefs who hold the collective memory of the Rejang Tribe, officials of the Customary Consultative Body (BMA) who understand traditional regulations, traditional practitioners or carpenters who master vernacular construction techniques, and the original inhabitants of the building as representatives of the users. The informants ranged in age from 45 to 75, a demographic that collectively represents long-term experience regarding the building's performance in the face of various catastrophic events in the past.

A data triangulation strategy was applied by integrating material evidence through field observations and in-situ technical surveys with cultural narratives through in-depth interviews. The focus of observations was directed at the engineering logic behind the structural system and material selection to map how the building's elements technically

respond to seismic loads. The collected data were then analyzed using comparative descriptive techniques that orient the findings toward a dialectical synergy between empirical local wisdom and the theoretical parameters of modern architectural engineering. Through the deconstruction of *Umeak An* structural elements, this study compared every construction detail, from connection flexibility to load distribution, with contemporary disaster mitigation standards to formulate a new synthesis regarding adaptive building resilience for disaster-prone areas.

## RESULTS AND DISCUSSION

Analysis of field data in Senali and Kali Villages reveals that the architecture of *Umeak An* in North Bengkulu Regency embodies vernacular technology that is technically adaptive to the geodynamic characteristics of the region. Structurally, the observed buildings demonstrate the use of a timber frame system with natural stone foundations that are not permanently embedded in the ground, an engineering feature that functions as natural seismic isolation. The use of highly elastic timber materials and the application of flexible, nailless joints (papurus) have proven to be key factors in maintaining the building's integrity. These findings confirm that each element of *Umeak An* construction is not simply an aesthetic choice, but rather an active defense strategy that allows the structure to facilitate controlled load transfer to prevent total collapse during major tectonic activity in the region.This seismic threat is not only speculative but is stratified in the national earthquake map as a Danger Zone (Scale 5 and 6). This classification emphasizes that the risk of structural damage in North Bengkulu is absolute, so that the development of an adaptive housing system is no longer an option, but a necessity of engineering. This extreme geological reality demands a synchronization between physical construction and natural dynamics, where traditional architectural principles become highly relevant as historically proven mitigation solutions. Here's a narrative that has been sharpened by reinforcing the technical and engineering aspects of the vernacular, so that your findings look more scientifically authoritative.

Field findings confirm that *Umeak An* is a product of the evolution of the Rejang Tribe's vernacular architecture which was born from a deep awareness of extreme environmental dynamics. In contrast to the modern construction paradigm that tends to be rigid and static, *Umeak An* adopts the principle of flexibility through the use of selected local wood materials such as Meranti Merah, Medang Kuning, and Bedai. The selection of organic materials is a primary mitigation strategy; The characteristics of wood grain that have a high modulus of elasticity allow the structure to absorb and dissipate seismic energy much more

effectively than the rigidity of cement or brick structures that are prone to abrasion cracks (brittle breaks).

*Umeak An* structural advantages technically rest on two main engineering pillars. First, the implementation of the Non-Nail Connection System which uses a papurus mechanism (betino-lanang) as well as wooden and bamboo pegs. The structural reliability of *Umeak An* has not only been tested theoretically but also validated through interview data regarding the building's performance during the 2007 Bengkulu earthquake. According to key informants, particularly the original residents and traditional leaders who experienced the crisis firsthand, the *Umeak An* building exhibited unique dynamic behavior compared to permanent structures. Informants explained that at the peak of the shaking, *Umeak An'*s wooden frame experienced flexible movement without any elements breaking or detaching from the stone foundation.

Technically, these interviews confirmed the energy-absorbing function of the papurus joint system. One traditional carpenter explained that "wiggle space" at each wooden joint was intentionally created to allow the building to follow the direction of seismic waves. This demonstrates that *Umeak An*'s superior seismic performance in the face of extreme lateral loads in 2007 is a result of the principle of proper ductility. Unlike the walls of surrounding houses, which experienced brittle failure due to structural rigidity, *Umeak An* remained stable. These findings strengthen the argument that the local knowledge of the Rejang Tribe in building housing has gone beyond conventional safety standards through an adaptive performance-based design approach.

**Figure 1. Front view of traditional architecture *'Umeak An'***

Sources: Researcher's Observations (2025)

Furthermore, the visualization in Figure 2 shows the exterior profile of the *Umeak An* traditional house which shows the integration between the stage structure and the modification of the modern material wall at the bottom. This photo clearly shows the use of wooden columns that support the main floor, creating a free space under the building that serves to minimize the transmission of ground vibrations directly to the residential space. The gable roof structure with a steep slope and the presence of an open veranda reflect adaptation to tropical climates while reducing static loads on the top of the building. The use of wood materials at the top of the house emphasizes the application of elastic structures which are crucial to maintain the integrity of the building when facing dynamics in the Bengkulu area.

**Figure 2. The exterior perspective of *Umeak An* shows the combination of elastic wood structure and adaptation of local materials.**

Sources: Researcher's Observations (2025)

The documentation in Figure 3 shows the variation of the typology of *Umeak An* which has undergone a process of functional adjustment in the underside of the house into a permanent residential space with brick walls. Although the lower part of the building has been transformed into a rigid structure, the upper part of the floor retains the traditional wooden construction. This photo shows how the collective memory of the Rejang Tribe in using wood materials for the main residential area remains, despite the pressure to keep up with modern material trends. The use of zinc material on the roof and the closure of the veranda area with wooden windows is a form of practical adaptation but still carries the principle of light building load at the top to reduce the risk of collapse due to inertial forces during an earthquake.

The results of in-depth interviews with traditional leaders and elders revealed that *Umeak An* is not a product of chance, but the result of dialectics through a process of collective trial and error over the centuries. However, this study identifies systemic threats to

the sustainability of this local wisdom. There is a worrying paradox, on the one hand, the awareness of *Umeak An*'s technical superiority remains high among traditional homeowners who have proven the resilience of their residences to major earthquakes, but on the other hand, there is a shift in preference towards modern building typologies that are considered more prestigious (social status). This crisis is exacerbated by the degradation of natural resources. In the Taba Tembilang area, the replication of *Umeak An* architecture is hit by the scarcity of quality wood and bamboo materials due to the absence of an integrated reforestation scheme. This leads to being trapped in the use of rigid materials (concrete) which technically increases their vulnerability to threats.

**Figure 3. The typology of *Umeak An* with the adaptation of brick walls on the lower floors as a form of traditional residential transformation**

Sources: Researcher's Observations (2025)

This phenomenon suggests that although the earthquake resilience of *Umeak An* has been historically and practically validated, its sustainability is now threatened by sociocultural amnesia and ecological scarcity. If there is no intervention in the form of material protection and value revitalization, then "*Umeak An*" will transition from a living mitigation technology to a static artifact of the past, leaving the community at high risk in a constantly moving hazard region.

The results of this study indicate that *Umeak An* functions as a dynamic resilience structure that represents the integration between vernacular engineering and adaptive strategies in mitigating seismic risks in the Bengkulu region. Technically, the structural advantage of *Umeak An* lies in its ability to optimally dissipate seismic energy through a non-rigid structural system. The use of wood materials with high elasticity modulus acts as a structural component that is able to reduce stress without experiencing material failure.

Furthermore, the implementation of the papurus connection system (betino-lanang) and the use of wooden pegs create a "plastic joint" mechanism that gives a degree of freedom to the building. This mechanism allows the structure to respond kinetically to ground shocks; Buildings do not "resist" the force of an earthquake but rather flow with seismic waves through controlled movement. From the perspective of modern earthquake engineering, this principle is synonymous with the concept of base isolation and a simple damping system, where structural flexibility is the main key in preventing total collapse due to extreme lateral loads. Thus, *Umeak An* is clear evidence that the local wisdom of the Rejang Tribe has exceeded its time in creating safe housing in the midst of the threat of regional hazards.

The Old Model House Philosophy *(Umeak An)* contains noble values that are substantially in line with the mandate of Law No. 32 of 2009, where local wisdom is positioned as an instrument for environmental protection and management oriented towards public safety. The practice of building *Umeak An* is not just an architectural tradition, but a manifestation of the protection of the human ecosystem that integrates the security of life with the balance of nature. The slab system or splint (reinforcement of bamboo weaving) and the use of wooden pegs as a substitute for metallic nails are real applications of implicit knowledge that has passed historical verification through centuries of trial and error on the natural dynamics of Bengkulu.

The integration between these symbolic and functional dimensions, in line with the study (Hatta & Sudrajat, 2020), *Umeak An*'s position as a cultural identity entity that doubles as a structural safety device. In the midst of the permanent threat of Semangko Fault activity and the destructive potential of Megathrust, the existence of this knowledge must not stop as a passive collective memory. Deconstruction and revitalization efforts are needed so that these vernacular engineering principles can be incubated into modern construction standards. integration of cultural heritage into modern architectural practice, emphasizing its role in preserving local identity, promoting sustainability, and encouraging (Idrus et al., 2024). Community involvement Ignoring the logic of *Umeak An* structure means ignoring proven safety solutions, so that the transformation of traditional values into today's building regulations is an urgent imperative for the resilience of communities in hazard regions.

This study reveals a fundamental contradiction between the community's recognition of the structural security of *Umeak An* and the reality of their housing choices. Although the validity of the resilience of traditional buildings has been empirically tested, the pressure of economic factors and social stigma that tends to associate modern materials with prestige has pushed society to turn to concrete building typologies that are highly susceptible to seismic

shocks (Arrizqi & Hermawan, 2021). This crisis is exacerbated by ecological degradation in the form of a scarcity of quality wood materials due to the absence of strategic reforestation schemes, which systematically accelerate the extinction of vernacular technology (Puspita et al., 2016).

Facing the threat of extinction of knowledge, a conservation strategy is needed that goes beyond just physical conservation. The principle of kinetic elasticity of *Umeak An* must be adapted into the modern building paradigm through the integration of wooden frames or environmentally friendly composite materials capable of simulating traditional earthquake attenuation mechanisms (Darmawan & Sastrawan, 2020). Composite materials offer not only structural resistance to seismic loads but also support the principle of sustainability in modern construction (Rusyda et al., 2021). In addition to technical interventions, restructuring public awareness through educational channels, both formal and non-forma (Asyifa & Ilhami, 2026) Without the reintegration of mitigation values into the collective memory, the people of Bengkulu will continue to be trapped in the cycle of disaster risk due to neglect of ancestral intelligence that holds the key to future safety.

## CONCLUSION

This study confirms that *Umeak An* is not just a static cultural artifact, but a very advanced and relevant mitigation technology manuscript. As a manifestation of the resilience architecture born from the evolution of the adaptive intelligence of the Rejang Tribe against tectonic determinism in Bengkulu, this building succeeded in transforming itself from a static structure to a kinetic system. Through the implementation of an elastic stage structure and a papurus (non-nail) connection system, *Umeak An* is able to optimally dissipate seismic energy, allowing the building to "dance" with the earthquake waves without experiencing fatal structural failures. The empirical validation of the 7.0 magnitude earthquake in 2007 is irrefutable evidence that this vernacular engineering logic is far superior in maintaining the integrity of buildings compared to modern concrete typologies that tend to be rigid and brittle.

However, the existence of this ancestral intelligence is now at a critical point due to a paradox of modernity. There is a sharp disparity between the community's recognition of *Umeak An*'s security and the reality of their housing choices that prioritize social prestige through cement materials. This phenomenon of sociocultural amnesia, exacerbated by ecological degradation in the form of a scarcity of quality wood materials, threatens the sustainability of safety technologies that have been tested for centuries. Without revitalization efforts that integrate the traditional elasticity principle into modern construction regulations

and are strengthened by local material reforestation schemes, *Umeak An* will lose its function as a protector of life and will only end up as a silent historical artifact amid the looming megathrust threat.

## RECOMMENDATIONS

Based on the findings of the research on the resilience of *Umeak An* architecture, there are several implicit recommendations that are urgent to be followed up. First, for local governments and relevant authorities, concrete steps are needed to adopt the principle of traditional structural flexibility into building regulatory policies. This can be realized through the preparation of the IMB (Building Permit) standard which requires the application of the "Traditional construction" system for residences in high-vulnerability zones. This system integrates modern materials with elastic connection logic and vibration dampening such as *Umeak An*, so that the safety of people in hazard regions is no longer compromised by rigid material prestige.

Second, in order to overcome the constraints of material scarcity, it is recommended that an integrated ecological revitalization policy be implemented. Relevant agencies need to initiate a systematic replanting (reforestation) program of local timber species such as Meranti, Medang, and Balam. Without the guarantee of the availability of these organic raw materials, the Rejang Tribe's vernacular mitigation technology is certain to become extinct. In addition, these values of local wisdom must be integrated into the mitigation education curriculum at the regional level to break the chain of sociocultural amnesia and re-cultivate the young generation's pride in the technical intelligence of their ancestors.

For the next researcher, this study opens space for further research that is more specific on the experimental aspect of structural mechanics laboratory. Quantitative research is needed on numerical modeling of the durability of the papurus connection system (betino-male) using more precise seismic load simulation. The development of composite materials based on local natural fibers is also a promising research opportunity as an alternative to wood that is starting to become scarce. Thus, the local wisdom of *"Umeak An"* can be transformed from just a cultural heritage to a global engineering solution that is able to save lives in various earthquake-prone areas in the world.

## BIBLIOGRAPHY

Asyifa, R., & Ilhami, A. (2026). Strategi Pendidikan Lingkungan Non-Formal Untuk Meningkatkan Kesadaran Ekologis Masyarakat Perkotaan. *Cakrawala Pendidikan: Jurnal Pendidikan Multidisiplin*, *1*(1).

Hadi, A. I., Brotopuspito, K. S., Pramumijoyo, S., & Hardiyatmo, H. C. (2018). Regional Landslide Potential Mapping in Earthquake-Prone Areas of Kepahiang Regency,

Bengkulu Province, Indonesia. *Geosciences*, *8*(6), 219. https://doi.org/10.3390/geosciences8060219

Idrus, I., Paddiyatu, N., & Latif, S. (2024). Mengintegrasikan Warisan Budaya dalam Arsitektur Modern: Tinjauan Literatur Tentang Menyeimbangkan Keberlanjutan dan Identitas. *Jurnal Linears*, *7*(2). https://doi.org/10.26618/j-linears.v7i2.16019

Naing, N., & Hadi, K. (2020). Vernacular Architecture of Buginese: The Concept of Local-Wisdom in Constructing Buildings Based on Human Anatomy. *International Review for Spatial Planning and Sustainable Development*, *8*(3), 1–15. https://doi.org/10.14246/irspsd.8.3_1

Natsir, M., & Rachmad, A. (2018). Penetapan Asas Kearifan Lokal Sebagai Kebijakan Pidana dalam Pengelolaan Lingkungan Hidup di Aceh. *Jurnal Magister Hukum Udayana*, *4*(7).

Puspita, A. A. P. A., Sachari, A., & Sriwarno, A. B. (2016). Dinamika Budaya Material pada Desain Furnitur Kayu di Indonesia. *Panggung*, *26*(3). https://doi.org/10.26742/panggung.v26i3.189

Rusyda, H. F. S., Purnomo, A. D., & Jembarati, P. (2021). Tinjauan Budaya Pada Bentuk Rumah Vernakular di Jabungan Semarang. *Jurnal Arsitektur NALARs*, *20*(2), 131–136.

Setiawan, D., Mase, L. Z., Supriani, F., Misliniyati, R., & Amri, K. (2025). Studi Resistensi Tanah Berdasarkan Variasi Kedalaman Kecepatan Gelombang Geser (VS) di Kecamatan Selebar, Kota Bengkulu. *Jurnal Geosaintek*, *11*(2), 153–167. https://doi.org/10.12962/j25023659.v11i2.3075

Siburian, B. I., Marzuki, M., & Lubis, A. M. (2024). Local site effects and seismic microzonation around Suban Area, Curup Rejang Lebong, Bengkulu deduced by ambient noise measurements. *Geoenvironmental Disasters*, *11*(1), 5. https://doi.org/10.1186/s40677-024-00268-7

Sumanjaya, E., Iswanuri, R., & Fajriyanto. (2024). Identifikasi Daerah Terdampak Dari Ancaman Sesar Semangko Terhadap Potensi Bencana Gempa Bumi di Kabupaten Tanggamus. *Prosiding Seminar Nasional Ilmu Teknik Dan Aplikasi Industri Fakultas Teknik Universitas Lampung*.