

ENHANCING COMMUNITY AWARENESS AND PREPAREDNESS IN DISASTER RISK COMMUNICATION IN PERMAI PENANG - MALAYSIA

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ABSTRACT

The rising frequency and impact of natural disasters underscore the need for effective disaster risk communication, especially in vulnerable communities like PERMAI, Penang, Malaysia. This service program aims to enhance community resilience through disaster communication training. Methods include workshops, outreach, and distribution of educational materials such as brochures and digital content. A local communication network was established to support emergency information dissemination. Results indicate increased public understanding of disaster risks, a rise in trained individuals, and the emergence of local leaders as disaster communication ambassadors. The program effectively fostered awareness, preparedness, and collaborative networks to build a more resilient PERMAI community.

Keywords: Risk Communication, Disaster Communication, Community Awareness

1. INTRODUCTION

Penang, Malaysia, is highly vulnerable to various natural disasters, including floods, landslides, and strong winds. As a densely populated area experiencing rapid urbanization, the risks and impacts of disasters continue to grow. This situation highlights the critical need for disaster risk communication training to reduce the adverse effects of such events.

Global climate change has significantly increased the frequency and severity of natural disasters in Penang. Heavy rainfall often causes severe flooding, and unpredictable weather patterns worsen the impacts of these disasters. Landslides are common in Malaysia due to the nation's all year long wet and humid conditions. The public's awareness of the disaster, or their perception of it, can be used as a yardstick for gauging the community's preparedness in face of similar disasters (Muhseen, Azmi, Abd Wahab, & Ahmad, 2022). Without adequate understanding of disaster risks and mitigation measures, communities remain highly vulnerable to significant losses.

Additionally, many local residents lack sufficient knowledge about disaster risks and effective mitigation strategies. Inaccurate or incomplete information during emergencies often worsens the situation. Disaster risk communication training can help raise public awareness and improve the dissemination of critical information.

Furthermore, the current emergency communication systems in Penang face limitations, with uncoordinated efforts leading to delays in information dissemination. Training is necessary to build an effective, fast, and targeted communication network, enabling timely protective actions during crises.

Urbanization in Penang also presents challenges, particularly in addressing the needs of a diverse population with varying cultural and linguistic backgrounds. Inclusive communication strategies tailored to the local context are essential and can be developed through targeted training programs.

By offering disaster risk communication training, communities in Penang can improve their preparedness, reduce potential losses, and build collective resilience against future disasters. The implementation of disaster preparedness education faces various challenges, including limited access to resources, lack of training for educators and the low priority of this program in some schools. Therefore, close collaboration

between the government, educational institutions and non-governmental organizations is needed to ensure the sustainability and effectiveness of this program (Nasution, Lestari, & Usiono, 2025).

PERMAI stands for the **Indonesian Community Organization in Penang, Malaysia**, a non-political, non-governmental organization focusing on social, educational, and cultural initiatives. Its members consist of Indonesians residing in Malaysia, including expatriates, business professionals, lecturers, teachers, students, workers, and others.

As migrants in a foreign land, members of PERMAI strive to foster goodwill and harmony between the Indonesian and local Malaysian communities. With humility and friendliness, they engage in meaningful interactions, promote tolerance, and contribute positively, regardless of race, ethnicity, beliefs, or religion. They uphold values of solidarity through mutual respect, adaptation, and cooperation.

PERMAI brings together a diverse community from all regions of Indonesia, representing a wide range of backgrounds. The organization encourages a synergistic approach, where those with more resources support those with less, the strong assist the vulnerable, and the knowledgeable educate the inexperienced. These efforts aim to complement and support government initiatives in community welfare.

In addition to its social mission, PERMAI actively seeks collaboration with partners willing to share knowledge or expertise in areas such as eCommerce, fintech, digital technology, and other practical skills (Siswanti, Nawangsari, & Bin Rahmad, 2024). These efforts help establish stronger socio-cultural ties between the Indonesian and Malaysian communities while empowering members with valuable skills.

PERMAI also aspires to be an incubator for nurturing individuals with specialized skills or expertise, enabling them to secure better job opportunities and competitive salaries comparable to those of other nationalities.

As cultural ambassadors abroad, PERMAI remains committed to preserving Indonesian cultural heritage and identity, adhering to Indonesia's Constitution and the principles of Pancasila. At the same time, members respect and uphold Malaysia's laws and regulations, embodying the traditional wisdom of the saying, "When in Rome, do as the Romans do."

PERMAI, as the Indonesian Community Organization in Penang, Malaysia, comprises diverse members, including expatriates, professionals, students, and workers. Despite their varying backgrounds, many members share a common vulnerability to disasters, particularly as migrants in a foreign land. Given this context, disaster risk and communication training are critical for PERMAI to effectively protect its community members and foster resilience.

Penang is prone to natural disasters such as floods and landslides, which can disproportionately affect migrant communities like those within PERMAI. Limited familiarity with local disaster protocols and resources often leaves members unprepared for emergencies. Training in disaster risk and communication would equip members with the necessary knowledge to understand, prepare for, and respond to such events effectively.

As a non-governmental organization with a mission to foster solidarity and social welfare, PERMAI plays a key role in bridging gaps within its community. Promoting individual disaster preparedness is one of the most effective ways to reduce disaster risk. Effective disaster risk communication is widely known to motivate individuals to take protective measures (Yu, Sim, Qi, & Zhu, 2020). A well-trained network within PERMAI can disseminate accurate and timely information during emergencies, reducing panic and enabling coordinated action.

Furthermore, the cultural and linguistic diversity of PERMAI's members creates unique communication challenges during crises. Disaster communication training can help overcome these barriers, ensuring messages are accessible and understandable to everyone in the community.

Training in disaster risk communication would also strengthen PERMAI's capacity to collaborate with local Malaysian authorities and other organizations. This collaboration is essential for building trust, accessing resources, and ensuring the safety of its members while fostering stronger ties between the Indonesian and Malaysian communities.

By prioritizing disaster risk and communication training, PERMAI can better fulfill its role as a protective, adaptive, and empowering organization for Indonesians in Penang, contributing to the overall resilience of both its members and the broader community.

2. METHOD

To implement effective solutions in addressing issues related to natural disasters, several strategic steps are undertaken. These include assessing and prioritizing concerns based on urgency and potential impact, identifying high-risk disaster zones to protect the public, enhancing disaster identification skills through simulations and group discussions, and conducting awareness campaigns via social media, posters, and webinars to educate the public on natural disaster risks.

In this initiative, partner participation plays a crucial role. Mercu Buana University (UMB) and the PERMAI community collaborate closely to reduce disaster risks in Penang, Malaysia. UMB contributes by conducting research to map natural disaster potentials, developing disaster risk communication strategies, and facilitating awareness sessions to engage students in promoting preparedness. Meanwhile, PERMAI supports risk mapping by providing local government data, offering culturally informed feedback on communication strategies, and involving its members in training and socialization activities. Through this synergistic partnership, UMB and PERMAI co-develop a curriculum that not only addresses disaster risks comprehensively but also builds community ownership and ensures the program's long-term sustainability.

3. RESULT AND DISCUSSION

The International Joint Community Service activity titled "Enhancing Community Awareness and Preparedness in Disaster Risk Communication" was successfully conducted on May 4, 2025, in collaboration with the PERMAI Indonesian community in Penang, Malaysia. The initiative aimed to strengthen disaster risk awareness and community preparedness among Indonesian migrants through an inclusive and practical approach to risk communication.



The program began by introducing participants to various types of natural disasters, including floods, earthquakes, tsunamis, landslides, and pandemics, and invited them to reflect on how these risks may manifest locally in Penang. Participants were engaged in discussions to connect these global threats with real events in their immediate environment, such as the major flood of 2017 and landslide of 2018 in George Town.



Banjir di George Town, Penang (5 November 2017)

Gambar ini menunjukkan area pemukiman yang terendam banjir setelah hujan deras yang berlangsung selama lebih dari 24 jam.

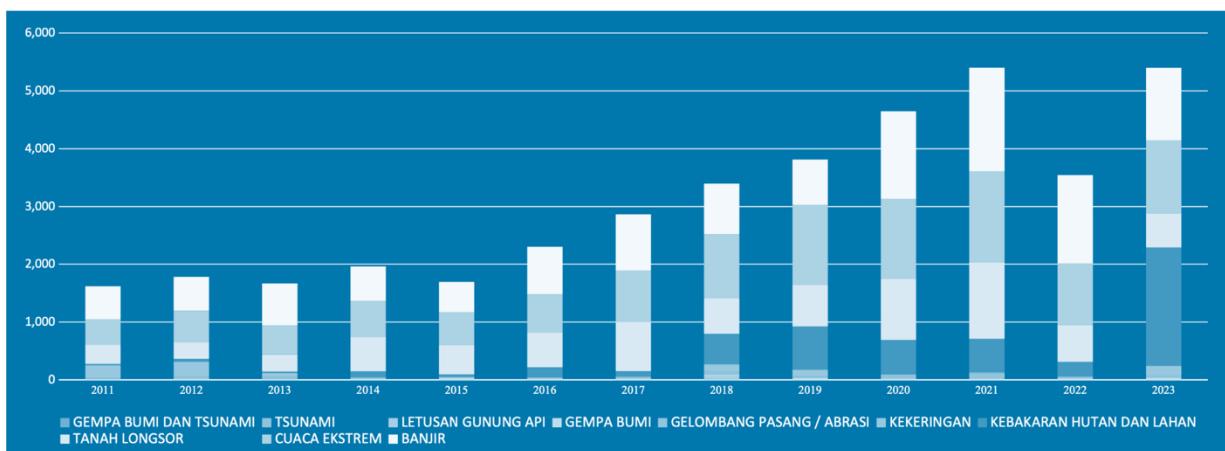
Longsor di Jalan Bukit Kukus, George Town (19 Oktober 2018)

Dampak longsor yang terjadi di area konstruksi, menyoroti pentingnya kesadaran akan risiko tanah longsor.

This fostered awareness of how disaster frequency and impact are increasing due to climate change and urban development.

These slides emphasize the alarming rise in the frequency, intensity, and complexity of natural disasters globally and specifically in Penang, Malaysia. The presentation features real-life examples such as the 2017 flood in George Town, where heavy rainfall inundated residential areas for over 24 hours, and the 2018 landslide at Bukit Kukus,

TREN BENCANA SEMAKIN MENINGKAT



Frekuensi bencana terus meningkat setiap tahun, dampaknya makin parah, wilayah terdampak makin luas, serta penanganannya semakin kompleks dan sulit diprediksi.

which occurred in a construction zone and resulted in multiple casualties. These events were not only significant in terms of physical damage but also served as a wake-up call about the vulnerabilities that communities—especially migrant populations—face in urban environments.

The facilitator highlighted how disasters are becoming more unpredictable due to climate change, rapid urbanization, and ecological degradation. These factors have expanded the areas at risk, making disaster impacts harder to predict and manage. Participants were encouraged to reflect on how these trends relate to their own living conditions in Penang and how a lack of preparedness or awareness could lead to devastating consequences.

This section underscored the urgency of equipping communities with risk communication strategies that are not only scientifically accurate but also culturally and linguistically accessible. The rise in disaster incidents reinforces the need for communities to develop adaptive capacity, establish early warning mechanisms, and practice coordinated emergency responses.

By contextualizing global data with local examples, the slides aimed to make the concept of "risk" more tangible, fostering a proactive mindset among participants. Ultimately, this session served as a foundation for the subsequent disaster simulation and preparedness training, grounding theoretical concepts in the lived realities of the PERMAI community.

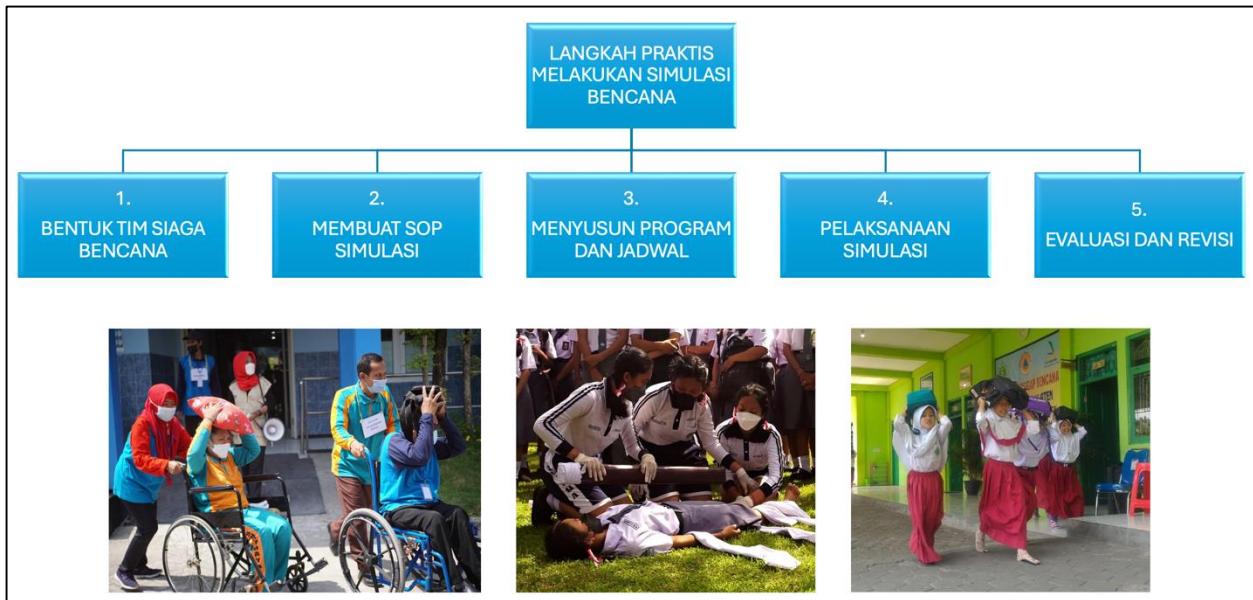
This section of the presentation emphasizes the critical role of accurate, timely, and culturally accessible disaster information in reducing the risks and impacts of natural disasters. Participants were introduced to the idea that misinformation—or even delayed information—during a disaster can worsen panic, hinder decision-making, and ultimately lead to greater loss of life and property.

The slides underscore that risk literacy must not be conveyed in abstract or overly technical terms. Instead, it should be tailored to the community's cultural context and delivered in languages or dialects that people fully understand. This is particularly important in a diverse migrant community like PERMAI, where differences in language, education level, and media access may hinder the effective reception of critical alerts.

To bridge the gap between awareness and action, the program integrated disaster simulation exercises. These simulations were designed not just as demonstrations, but as immersive experiences that enabled participants to apply their knowledge in realistic crisis scenarios. Participants practiced evacuation routes, learned how to identify early warning signs, and used simple communication tools during simulated emergencies.

Through these simulations, the program highlighted that disaster preparedness is not merely about knowing what to do—it is about being ready and confident enough to do it under pressure. By moving beyond theoretical education to practical, hands-on training, the activity transformed knowledge into action, empowering community members to protect themselves and support others during real emergencies.

The session emphasized the urgent need for accessible and accurate risk communication. Beyond lectures, the activity incorporated hands-on simulation training, allowing participants to experience structured disaster response in three stages: before, during, and after an event. These included evacuation drills, first response techniques, and emotional recovery measures.



One of the most strategic and lasting outcomes of this community service activity was the establishment of the PERMAI Disaster Response Team, comprised of trained community volunteers. This team is envisioned as a local task force responsible for promoting preparedness, disseminating information, and coordinating emergency responses within the PERMAI community—especially in times of crisis.

In collaboration with participants, the program facilitated the development of disaster simulation Standard Operating Procedures (SOPs). These SOPs were not imposed top-down but co-designed with community input to ensure they reflect the cultural, social, and logistical realities of the community. This participatory approach increased both the relevance and the ownership of the SOPs among community members. The session also introduced participants to basic emergency communication tools to support disaster readiness. The evaluation process, which included post-activity surveys and group reflections, revealed a significant increase in participants' knowledge and confidence in disaster preparedness. Many expressed willingness to act as peer educators within their networks.



The disaster simulation, conducted in three sequential phases—before, during, and after a disaster—served as a practical and immersive learning experience for the PERMAI community. Participants were trained to recognize early warning signs, prepare emergency kits, and develop family action plans. During the simulation, they practiced drop-cover-hold on techniques, navigated evacuation routes, and engaged in

real-time communication using community alert tools. In the post-disaster phase, the focus shifted to victim documentation, logistical coordination, and emotional recovery, including discussions on mental health support. This hands-on, role-play-based simulation not only reinforced theoretical knowledge but also empowered participants with the confidence and skills to act effectively during real emergencies.

The simulation applied a role-play and guided physical practice approach, allowing participants to act out real-life scenarios in a controlled and safe environment. The level of enthusiasm and engagement was notably high, reflecting the effectiveness of experiential learning in disaster education. This hands-on experience enabled community members not just to absorb information, but to internalize response behaviors that could save lives in actual crisis situations.

Moreover, the program also provided a meaningful learning experience for students from Universitas Mercu Buana. By participating in the design, facilitation, and documentation of the activities, they developed cross-cultural communication skills, teamwork, and practical knowledge in community-based disaster risk management.



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