PUBLIC COMMUNICATION AND COMMUNICATION BEHAVIOR: THE MARCH 28, 2025, EARTHQUAKE

Natt Leelawat[1,2,*], Ampan Laosunthara[3], Kodchakorn Krutphong[4], Wongsa Wararuksajja[5], Naruethep Sukulthanasorn[6], Anawat Suppasri[6], Ratchaneekorn Thongthip[7], and Chatpan Chintanapakdee[1]

[1] Chulalongkorn University, Bangkok, Thailand, [2] Keio University, Yokohama, Japan, 3 Institute of Science Tokyo, Tokyo, Japan, [4] Mahidol University, Kanchanaburi, Thailand, [5] Rajamangala University of Technology Thanyaburi, PathumThani, Thailand, [6] Tohoku University, Sendai, Japan, [7] Asian Institute of Technology, Pahum Thani, Thailand,

*Corresponding author: natt.l@chula.ac.th, n.leelawat@gmail.com

1. INTRODUCTION

The March 28, 2025, Mandalay Earthquake caused strong shaking in Thailand, especially in Bangkok, where long-period ground motion led to panic and confusion. This study focuses on public communication and communication behavior during the first 72 hours after the earthquake. Thailand's official alert system, based on manually approved SMS messages, was delayed and limited in coverage. Many people did not receive timely warnings, and some received fake messages with dangerous links. As a result, the public turned to social media platforms like Facebook, LINE, and X (Twitter) for real-time updates. Data usage increased sharply, showing a strong behavioral shift toward digital communication. Evacuation behavior also showed low awareness of earthquake safety. Many people left buildings during shaking, causing overcrowding in stairwells and injuries. The findings highlight the need for faster alert systems like Cell Broadcast Services (CBS), better coordination between agencies, and public education to improve safety behavior during disasters.

2. OFFICIAL ALERTS AND SYSTEM LIMITATIONS

In Thailand, the official alert system is initiated by the Department of Disaster Prevention and Mitigation (DDPM) [1–2]. For this earthquake disaster, the alert messages were distributed via SMS messages. These messages needed manual approval and were sent through telecom companies. The first alert came 5–7 hours after the earthquake, so it was too late to help people take action. Also, each SMS batch could only reach 100,000–200,000 people, so many received the message at different times. Some fake messages with dangerous links were also shared, and DDPM had to explain that real messages would come from "DDPM" and not include any other links [3–6].

3. PEOPLE'S BEHAVIOR AND USE OF SOCIAL MEDIA

Although voice calls were the primary means of communication immediately after the earthquake, changes in mobile data usage provided a deeper understanding of how people responded to the crisis. In the first 15 minutes after the earthquake, data usage on Thailand's two major mobile networks dropped clearly. This may have happened because people were focused on their safety and did not use online platforms right away. After that, many people used social media to find information. As shown in Table 1, the Internet data usage increased a lot—one network reported 199% more use on X (former Twitter), 74% more on LINE, and 41% more on Messenger in the first hour. Another network also saw similar increases. This shows that people trusted online platforms and shared information with each other. Facebook was the most used platform for government announcements, which matches the habits of Thai users [ac], [bd].

Table 1. Increasing data usage for specific SNS on March 28, 2025, 13:15-14:15

SNS (operator A)	% Increasing	SNS (operator B)	% Increasing
X	199%	X	162%
LINE	74%	LINE	90%
Messenger	41%	Messenger	77%

Note. Source: [6].

4. EVACUATION BEHAVIOR AND PUBLIC CONFUSION

The behavior of people during the earthquake showed that many were not prepared. Some people left tall buildings while the shaking was still happening, which is not safe. The correct action is "Drop, Cover, and Hold On." Many stairways became crowded, and some exits were blocked. This caused injuries and even deaths, including one person who fell while evacuating. People with disabilities and older adults had more difficulty because the buildings were not easy to escape from, and there was not enough help. There were also no clear safe zones or trained leaders to guide people [7–9].

5. LESSONS AND RECOMMENDATIONS

This earthquake exposed the call for urgent reform in public communication protocols during disasters [10]. This event shows that Thailand needs to improve both its communication system and public education. It is important to use Cell Broadcast Services (CBS) to send fast alerts to people in danger zones. Also, the government should teach people how to behave safely during earthquakes. Agencies must work together better to avoid delays and confusion. The earthquake in 2025 showed that good communication is not only about technology—it is also about timing, trust, and understanding people's behavior. To make cities safer, it is necessary to connect official systems with the actions of the public. Another potential is to prepare more procedures and instructions for the local community. Some studies have shown the trend of applying generative artificial intelligence to assist in the preparation for disaster risk reduction [11].

3. REFERENCES

[1] N. Leelawat, A. Suppasri, and F. Imamura, "The tsunami warning system in Thailand: A part of the reconstruction process after the 2004 Indian Ocean tsunami," Advances in Natural and Technological Hazards Research, vol. 44, pp. 111–119, 2015

[2] N. Leelawat, P. Latcharote, A. Suppasri, T. Sararit, M. Srivichai, J. Tang, T. Chua, D. Kumnetrut, K. Saengtabtim, and F. Imamura, "Today in Thailand: Multidisciplinary perspectives on the current tsunami disaster risk reduction," Geological Society, London, Special Publications, vol. 501, pp. 353–365, 2021

[3] A. Laosunthara, K. Krutphong, N. Leelawat, W. Wararuksajja, N. Sukulthanasorn, A. Suppasri, R. Thongthip, and C. Chintanapakdee, "Initial observations and immediate lessons learned from Thailand's response to the 2025 Mandalay earthquake," International Journal of Disaster Risk Reduction, vol. 127, Sep. 2025

[4] Manager Online, Received an earthquake warning SMS from DDPM [Online]. Available: https://mgronline.com/travel/detail/9680000030005. (Accessed April 2025).

[5] ThaiPBS, Warning system' not timely for disaster, relying on SMS, awaiting Cell Broadcast [Online]. Available: https://www.thaipbs.or.th/news/content/350834. (Accessed April 2025)

[6] Posttoday, Earthquake transforms communication: thais rush to make calls, surging 5 times during the crisis [Online]. Available: https://www.posttoday.com/smart-life/721843. (Accessed April 2025)

[7] ThaiPBS, "Automatic doors lock shut during power outage, a silent danger that comes with the 'earthquake'," ThaiPBS [Online], Available: https://www.thaipbs.or.th/news/content/350683 (Accessed: April 2025)

[8] AmarinTV, "Younger sibling appeals to the media, raises doubts about elder sister falling from 13th floor condo during earthquake," AmarinTV [Online]. Available: https://www.amarintv.com/news/crime/510291 (Accessed: April 2025)

[9] Public Relations Office, "Governor Chadchart announces the earthquake situation in the Bangkok area and issues a declaration of disaster-affected zones," Public Relations Office, BMA, Mar. 2025

[10] A. Laosunthara, N. Leelawat, T. Ohashi, T. Sararit, M. Srivichai, and J. Tang, "Awareness of disaster risk and preparedness: insights from a survey of children and adults in Thailand," 2024 23rd International Symposium on Communications and Information Technologies (ISCIT), IEEE, Bangkok, Thailand, pp. 122–127, Sep. 2024

[11] K. Saengtabtim, N. Leelawat, R. Aumnoysombat, M. Adelifar, N. Saengwongwattana, G. Suktavornprasit, A. Suppasri, F. Imamura, and J. Tang, "Harnessing generative AI for enhanced disaster management: A systematic review," Big Earth Data, 2025