Perspectives

Another loss of radioactive material in Thailand highlights the need for effective risk communication

Kwan Hoong Ng, Ph.D., DABMP
From Department of Biomedical Imaging, Faculty of Medicine, Universiti Malaya, Kuala Lumpur, Malaysia.
Address correspondence to K.H.N.(ngkh@ummc.edu.my)

Received 8 April 2023; revised 18 April 2023; accepted 18 April 2023
doi:10.46475/aseanjr.v24i1.458

Abstract

On March 10th 2023, a cylinder containing caesium-137 was found missing from a power plant near Bangkok, Thailand. This generated lots of fear and anxiety, fuelled by social media and inadequate statements from the authorities. Later it was discovered in a foundry, compressed and partially melted. It is clear from this incident that risk communication was inadequate.

Two case studies from Southeast Asia, the 2004 Asian Earthquake and Tsunami in Banda Aceh, Indonesia, and the COVID-19 pandemic illustrate the significance of effective risk communication in crisis management and public policy.

This incident in Thailand serves as a "wake-up call" for other countries in Southeast Asia and beyond, urging them to ensure the safe management of radioactive materials as well as to pay attention to their own investments in creating efficient risk communication frameworks to deal with future disasters.

Keywords: Missing caesium-137, Radiation safety, Radioactive materials, Risk communication, Safety and security, Thailand.

THE ASEAN JOURNAL OF RADIOLOGY
ISSN 2672-9393

Common sense dictates that we must never assume that there are no crocodiles when crossing a calm river, lest it ends up costing us an arm or leg. And when it comes to the handling of radiological materials, we should never take it for granted and allow it to become routine with inadequate safety and security. This is especially true in Southeast Asian countries, where applications in nuclear technology are increasing; where awareness is not a priority; and where knowledge is privy only to a few stakeholders.

On March 10th 2023, Thailand was unwittingly thrust into the "international spotlight" when a cylinder used to store radioactive caesium-137 went missing from a power plant near Bangkok. News of this incident received coverage in the New York Times [1], CNN [2] and some regional news agencies, but the response was mostly sensational in the local media such as the Bangkok Post [3] and The Nation [4]. Understandably, many Thai citizens were gripped by panic and expressed anger towards authorities, despite a statement from the Thai Office of Atoms for Peace [5] to clarify the situation.

A few days later, the authorities found the caesium source, compressed and being melted along with other metals, in a steel foundry in Prachinburi Province [6]. They cordoned off the area and carried out health surveillance. Meanwhile fear and speculation continued.

The Samut Prakarn incident in January 2000, still fresh in the memory of the Thai public, in which 10 scavengers suffered radiation injury after opening a canister containing cobalt-60 that had been improperly disposed of at a hospital, eventually led to the loss of three lives. Although the casualties were considered few, thousands of people living around the affected area may have been inadvertently exposed to varying degrees of radiation. Till today, the effects on their lives are not fully known [7].

This image, provided by the Prachinburi Provincial Public Relations Office, shows the missing radioactive cylinder as part of a steel tube.

Importance of Effective Risk Communication

The latest incident has once again reinforced concerns about the safety and security of radioactive materials in International Atomic Energy Agency (IAEA) member states [8]. The competency of authorities in handling radiological crises has been called into question, and highlighted people's tendency to react with "radiation phobia" — a term used to describe irrational fear of radiation. While it is important to take radiation safety seriously, it is also vital to understand its nature and role in our lives [9,10]. Disasters in the peaceful application of nuclear energy, such as those in Chernobyl (1986) and Fukushima (2011), have further fuelled our aversion towards radiation. Yet, it is important to remember that the health risks from the current situation are significantly lower than those of the previous nuclear power mishaps.

THE ASEAN JOURNAL OF RADIOLOGY
ISSN 2672-9393

Hence, effective risk communication, including through social media, is key to managing risks in a radiological crisis [9,11]. The most important objective is to promote appropriate protective behaviour among those to whom information is directed. The primary goal of disaster communication is to inform people or communities about the risks they face in a timely and transparent manner, and protect them from impending hazards with the ultimate goal of reducing injuries and fatalities [12].

Thus, authorities have a responsibility to provide accurate, timely and easy-to-understand information. This may include information about the science of radiation and what to do if a crisis occurs. In the modern era, social media may become a bane of communication if misinformation and disinformation start to dominate discussions on the Internet. As a double-edged sword, social media can be easily used to quickly disseminate fact or fiction to a large audience — with systematic order a result of the former and panic arising from the latter. Therefore, it is important for authorities to monitor prominent communication channels and choose wise responses to refute misinformation.

It is natural for people in a crisis to feel angry and frustrated, especially when it is repeatedly due to lack of diligence. The latest slip-up in Thailand was no exception. However, choosing to engage in a blame-game will not be of benefit, and instead may result in a breakdown of communication and response measures. For authorities to build trust, they have to show the public that they are taking the initiative in addressing the situation. Then people will respond positively by being more cooperative and less likely to believe in conspiracy theories.

Examples of Other Southeast Asian Disasters

Perhaps what is more important is how policymakers and governments choose to handle risk communication. Good leadership will significantly reduce casualties and negative perceptions. To understand scenarios in Southeast Asia, there are two major incidents that may be used as case studies to assess the responsiveness of policymakers. The first example is the 2004 Asian Earthquake and Tsunami, where Adella *et al.* [12] explored the issues and challenges in implementing disaster risk reduction and communication efforts in Banda Aceh, Indonesia. The responsibility eventually fell on the north Sumatran city's Regional Disaster Management Agency (BPBD) which engaged local grassroots at the district level. However, 15 years after the disaster, the authors noted that lack of funding had become a main challenge in implementing programmes, so much so that drills and simulations, which are important to ensure preparedness, could not be carried out. This was followed by a lack of walkie-talkies and short-wave radios needed to facilitate communications in the event of a real disaster when handphone reception and Internet connection would be cut off. Finally, they describe a lack of capacity and skilled personnel to execute programmes. Consequently, the authors stated that these challenges had hampered the efficiency of the Banda Aceh BPBD in realising its disaster risk communication goals. Therefore, the case study indicates that risk communication is an extensive effort that requires "disciplined" investment which persists longer than the initial rescue and rehabilitation work.

The second example is the COVID-19 pandemic, where hoarding was a clear consequence of poor communication and heightened risk perception, resulting in a shortage of medicine and personal protective equipment in the early stages of the outbreak [13]. Pandemics may increase vulnerability to disasters, undermine the welfare of societies and threaten the stability of states. This was especially evident in the ASEAN nations whose leaders had downplayed or delayed taking action in controlling COVID-19. On contrast, nations like Vietnam, Singapore and Malaysia, which made efforts to quarantine their outbreaks and vaccinate their citizens, saw low fatality rates and less-burdened healthcare systems despite spikes in infections. Differences in terminology and countermeasures between these domains also often result in competing objectives, and resource inefficiencies that

THE ASEAN JOURNAL OF RADIOLOGY
ISSN 2672-9393

limit preparedness and slow responses [14]. In this aspect, the effective use of risk communication and engagement tools allowed community-oriented approaches and multi-stakeholder cooperation to flourish in dealing with COVID-19 [13]. These tools, when operated in native languages, can raise awareness, correct misperceptions and direct preventive measures. They may alleviate fear and stigma, enhance community response and solidarity, and allow for evidence-based interventions.

Conclusion

In conclusion, the recent Thai incident is a "wake-up call" for other nations in Southeast Asia and beyond to ensure the safe handling of radioactive materials. It is a reminder to pay heed to their respective investments in building an effective risk communication framework to cope with the future disasters which will inevitably arise.

References

1. Suhartono M, Yoon J. Search intensifies for radioactive canister missing for weeks in Thailand. The New York Times [Internet]. 2023 Mar 17 [cited 2023 Apr 18]. Available from: https://www.nytimes.com/2023/03/17/world/asia/thailand-radioactive-canister-lost.html.

2. Cable News Network [Internet]. Atlanta: CNN; c2023 [updated 2023 Mar 16; cited 2023 Apr 18]. Olarn K, Chen H. A radioactive cylinder has gone missing in Thailand. Authorities are now scrambling to find it. Available from: https://www.cnn.com/2023/03/15/asia/missing-lost-radioactive-cylinder-thailand-search-intl-hnk/index.html

3. Sanubboon M. Radioactive caesium missing from power plant. Bangkok Post [Internet]. 2023 Mar 14 [cited 2023 Apr 18]; AT 17:40. Available from: https://www.bangkokpost.com/thailand/general/2527661/radioactive-caesium-missing-from-power-plant.

4. Hunt for missing radioactive caesium intensifies in Prachinburi as health worries grow. The Nation Thailand [Internet]. 2023 Mar 15 [cited 2023 Apr 18]. Available from: https://www.nationthailand.com/thailand/general/40025715.

5. Office of Atoms for Peace [Internet]. Bangkok: OAP; c2016 [cited 2023 Apr 18]. Situation report and investigation of the missing radioactive material cesium-137, Si Maha Phot District Prachinburi Province. Available from: https://www.oap.go.th/resources/148-media-library/publications/category-other-multimedia/9130-137

6. Caesium-137 found at steel-melting plant during research for missing cylinder.The Nation Thailand [Internet]. 2023 Mar 16 [cited 2023 Apr 18]. Available from: https://www.nationthailand.com/thailand/general/40025846.

7. International Atomic Energy Agency [Internet]. Vienna: IAEA; c1998-2023 [cited 2023 Apr 18]. The Radiological Accident in Samut Prakarn 2002 STI/PUB/1124. Available from: https://www.iaea.org/publications/6375/the-radiological-accident-in-samut-prakarn

8. International Atomic Energy Agency [Internet]. Vienna: IAEA; c1998-2023 [cited 2023 Apr 18]. Security of nuclear and other radioactive material. Available from: https://www.iaea.org/topics/security-of-nuclear-and-other-radioactive-material

9. Ng KH. Radiation exposure and the need for effective risk communication: lessons following the 2011 Fukushima nuclear power plant accident. Med Phys Intern J 2018 [Internet]. 6:163-7 [cited 2023 Apr 18]. Available from: http://www.mpijournal.org/pdf/2018-01/MPI-2018-01-p163.pdf.

10. International Atomic Energy Agency [Internet]. Vienna: IAE; c1998-2023 [cited 2023 Apr 18]. Safety and security culture. Available from: https://www.iaea.org/topics/safety-and-security-culture

11. TWENTYTWO13.my [Internet]. Kuala Lumpur: Professional Storytellers PLT; c2018-2003 [cited 2023 Apr18]. Ng KH, Gong J. Dealing with 'radiation phobia' – if it occurs. Available from: https://twentytwo13.my/opinion/dealing-with-radiation-phobia-if-it-occurs.

12. Adella S, Nur MF, Nisa N, Putra AT, Ramadhana FR, Maiyani F, et al. Disaster risk communication issues and challenges: lessons learned from the Disaster Management Agency of Banda Aceh City. IOP Conf Ser: Earth Environ Sci 2019; 273: 012041. Doi: 10.1088/1755-1315/273/1/012041.

13. Abrams EM, Greenhawt M. Risk communication during Covid-19. J Allergy Clin Imunol Pract 2020 8:1791-4. doi: 10.1016/j.jaip.2020.04.012.

14. Lowy Institute [Internet]. Sydney: The Institute; c2023 [cited 2023 Apr 18]. Trias APL, Cooke ADB. Post-Covid disaster governance in Southeast Asia. Available from: https://www.lowyinstitute.org/the-interpreter/post-covid-disaster-governance-southeast-asia