

## Natech Risk Information Disclosure: A Survey of Public Risk Perception, Risk Communication, and Trust in Japan

○Lexin LIN, Ana Maria CRUZ

Interdependencies, urbanization and the growing complexity of modern societies are increasing the impacts of disaster risks, while their cascading effects are threatening humankind worldwide (CaDRI, 2011; OECD, 2003, 2011; UNISDR, 2017). Although governments across the globe are increasingly aware of, and committed to reducing the potential impacts of disaster risks, the number of lives lost and assets destroyed continues to grow rapidly (UNISDR, 2017). According to the World Disasters Report (2016), in 2015, a total of 108 million people were affected by disasters triggered by nature and/ or technology (excluding wars, conflict-related famines, diseases or epidemics), while 32,550 were killed, and economic losses reached 70.285 billion USD (IFRC, 2016). Meanwhile, annual average economic losses from all disasters have been calculated at around 250 to 300 billion USD (UNISDR, 2015). Faced with this evolving risk landscape, some large-scale disasters, such as Hurricane Katrina in the United States and the Great East Japan Earthquake, have suggested that those who are most affected in disasters are often the ones that lack of adequate information about the risks that they are exposed to. Past studies have pointed out that risk communication in a multi-stakeholder context is destined to be associated with multiple challenges (Hermans, Fox, & van Asselt, 2012; van Asselt & Renn, 2011; Veland & Aven, 2013; Kramer, 2005). Governments or industries that own risk-related information, are often reluctant to disclose key data concerning potential risks to the public or among themselves, for fear that it might highlight

vulnerabilities or expose managerial shortcomings, and worrying that it might cause panic or fall into the wrong hands thus further endanger the society (Lin, Nilsson, Sjölin, Abrahamsson, & Tehler, 2015; Lin & Abrahamsson, 2015; Lin & Eriksson, 2016). However, the danger of being over-protective with regard to risk-related information is that secrecy can lead to a false illusion of safety, which can be disastrous while facing a fast-developing disaster. It can also seriously limit stakeholders' collective ability to manage potential disaster risks, and/ or lead to other failures in disaster risk management. The consequences can be particularly serious in today's complex and interconnected world.

In other words, the more people are aware of potential disaster risks and vulnerabilities, the more prepared they are likely to be, and the less likely it is that they will be taken by surprise, while facing disasters. Some countries have introduced legislation to make sure risk-related information is disclosed to the public, while managing potential disaster risks. For instance, in the US, the Emergency Planning and Community Right-to-Know Act (EPCRA) of 1986 was designed to help communities to protect public health, safety, and the environment from chemical hazards; within the European Union (EU), the Seveso Directive (Directive 82/501/EEC) was enacted and later amended (Directive 2012/18/EU) to increase citizens' rights to access chemical risk information, and to prepare for catastrophic accidents. Across the globe, on the other hand, Asia and many other developing countries, have been lagging behind to

adopt this type of legislation. For example, despite the fact of being an advanced, democratic society with significant achievements in disaster risk management, Japan does not have specific rules concerning the disclosure of risk-related information to the public while facing the threats from various hazards (Ikeda, 2014).

The starting point of the current research is the observation that Japan lags behind with respect to regulating both government and industry in order to create an informed society, when confronting technological disaster risks. This study draws upon the Japanese context, where citizens are threatened by natural hazard-triggered technological accidents (Natech), but are not provided with sufficient and timely information to prepare for and/ or respond to. Two thousand questionnaires were distributed to households in the Osaka Bay and Tokyo Bay areas. Semi-structured interviews were conducted with representatives from governments and communities in various areas of Japan. By investigating the current status of Natech risk information disclosure, understanding government's and public's risk perception and their mutual trust in Natech risk management, this study seeks to identify: 1) citizens' demands for risk information when faced with Natech threats; 2) the amount of sensitive risk information that government is willing to disclose, in order to help citizens to prepare for, and respond to, potential threats. As this research aims to increase our general knowledge about communicating disaster risk-related information to the public, the results of this study are expected to find out the balance for adequate risk communication to the general public, which would fulfill citizens' requirement for proper risk-related information to protect them from adverse events, and at the meantime secure the safety of sensitive data from the authorities' perspective. Right now, there is very limited research conducted on the topic of risk-related information disclosure, and even fewer

has taken the cultural, technical, political aspects into consideration while seeking answers for what is the proper amount of information to disclose, when communicating risk for disaster risk management. Findings from this study are also expected to pave the way for legislative transformation in this disaster-prone country, while the overall goal is to create a more informed and transparent society that can withstand existential risks.

## References

- CaDRI. (2011). *Basics of Capacity Development for Disaster Risk Reduction*. Geneva, Switzerland
- Hermans, M. A., Fox, T., & van Asselt, M. B. A. (Eds.). (2012). *Handbook of Risk Theory Epistemology, Decision Theory, Ethics, and Social Implications of Risk*: Springer Netherlands.
- IFRC. (2016). *World Disasters Report-Resilience: Saving lives today; investing for tomorrow*. Geneva, Switzerland.
- Kramer, R. M. (2005). A failure to communicate: 9/11 and the tragedy of the informational commons. *International Public Management Journal*, 8(3), 397-416.
- Ikeda, S. (2014). Interdisciplinary Framework of Risk Communication as an Integral Part of Environmental Risk Analysis in Postindustrial Risk Society: Three Case Studies of the 1999 Amendment of Air Pollution Control Law, Dioxins, and the EMF Risks. *Journal of Disaster Research*, 9(sp), 628-637.
- Lin, L., & Abrahamsson, M. (2015). Communicational Challenges in Disaster Risk Management: Risk Information Sharing and Stakeholder Collaboration through Risk and Vulnerability Assessments in Sweden. *Risk Management*, 17(3), 165-178.
- Lin, L., & Eriksson, K. (2016). Exploring the development and use of municipal risk and vulnerability assessments in Sweden-Challenges and opportunities. Paper presented at the 13th International Conference on Probabilistic Safety Assessment and Management (PSAM13), Seoul, South Korea.
- L. Lin, A. Nilsson, J. Sjölin, M. Abrahamsson, H. Tehler, On the perceived usefulness of risk descriptions for decision-making in disaster risk management, *Reliab. Eng. Syst. Saf.* 142 (2015) 48–55.
- OECD. (2003). *Emerging Risks in the 21st Century: An agenda for action*. Paris
- OECD. (2011). *Future Global Shocks-Improving Risk Governance*. Paris
- Renn. (2014). Four questions for risk communication: a response to Roger Kaspersen. *Journal of Risk Research*, 17(10), 1277-1281.
- UNISDR. (2015). *Global Assessment Report on Disaster Risk Reduction 2015-The Pocket GAR 2015. Making Development Sustainable: The Future of Disaster Risk Management*. Geneva. Switzerland
- UNISDR. (2017). *Words into Action Guidelines: National Focal Points for Disaster Risk Reduction/National Platforms for Disaster Risk Reduction/ Local Platforms for Disaster Risk Reduction (public consultation version)*. Geneva, Switzerland
- van Asselt, M. B. A., & Renn, O. (2011). Risk governance. *Journal of Risk Research*, 14(4), 431-449.
- Veland, H., & Aven, T. (2013). Risk communication in the light of different risk perspectives. *Reliability Engineering and System Safety*, 110, 34-40.
- World Economic Forum. (2017). *The Global Risks Report 2017 12th Edition*. Geneva, Switzerland