

# Preparedness for Nankai Trough Earthquake: Incorporating Understandings of Uncertainties in Disaster Prevention Education Schemes

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For better disaster prevention education schemes to prepare for disasters, it is essential to examine how we address large-scale disasters with uncertainties which we have never experienced before, such as Nankai Trough earthquake. Specifically, how to incorporate “uncertainty” aspect into disaster prevention education and how to link the learnings into practices for better disaster preparedness is a critical challenge we are facing. The “uncertainty” is not a small component for disaster prevention. Rather, understandings of the reality of “uncertainty” at both scientific and social levels in terms of when, where, and how earthquakes may occur, affect the overall practical level of preparedness for disasters.

Given the above, addressing uncertainties is a challenge which multi-stakeholders need to work together, including natural and social scientists, policy communities, emergency practitioners, local governments, businesses, schools, and the public through collaborative learnings during normal times. For these learnings, it is critical for disaster prevention education to play a role. Especially the education schemes need to take into consideration: 1) how to make a common ground for understandings of uncertainties among multi-stakeholders based on available scientific information, 2) how to incorporate the understandings of uncertainties into learning process, and 3) how to direct the learnings into practices for better disaster prevention.

Based the above, a study group in Kyoto University where natural and social scientists collaboratively work together, have been seeking for the ways for addressing the reality of earthquake risks and uncertainties for different stakeholders through a series of workshops for the past three years. The presentation will report on the findings and insights drawn from the workshops targeted at education community (March, 2017), business community (June, 2017), civil disaster prevention community (March, 2018), and multi-stakeholders (January, 2019).

Specifically, the series of workshops were designed collaboratively by natural and social scientists with the focus on 1) scenario-based, 2) stakeholder-based, 3) site-based, and 4) dialogue-based or interactive-learning- based contexts. Especially, to optimize the learnings of earthquake risks and uncertainties, the workshops created processes for each participant to understand the uncertainties through themselves by applying it to their own daily lives or work settings.

Based on the workshops, overall, we have seen:

On the same table, different people with different backgrounds share their responses, awareness, and insights, which led to strengthen each understandings of the reality of uncertainties. Before and after the workshop, almost all participants changed their literacy and mindsets for addressing uncertainties. For examples, participants responded to workshops with comments: “earthquake risks have uncertainties

and it is important to act flexibly against the unexpected events” , “even as a person in charge in a company did not understand it before workshop” , and “I realized it is important to address “uncertainties” even if it is incomplete information.” As a collective knowledge from the workshop, as examples, from the one targeted for business, the following points were drawn:

- To provide any earthquake risk information is important even if the probability is low and uncertainty high. For this, information recipients’ literacy is necessary too.

- Providing information from authoritative institution is critical; since when we think about the real scenarios, information from SNS or other sources will be flooded.

- We need to think about not only BCP but also disaster risk management from daily basis, covering not only response, but also recovery.

Thus, based on the results drawn from the workshops, we will provide policy implications in terms of how to incorporate understandings of uncertainties in disaster prevention education schemes.

Keywords: Disaster Prevention Education, Nankai Trough Earthquake, Uncertainty, Forecast, Scenario-based Workshop