Review of: "How Social Infrastructure Saves Lives: A Quantitative Analysis of Japan's 3/11 Disasters"

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Potential competing interests: No potential competing interests to declare.

This paper addresses the challenging problem of mitigating tsunami hazard in Japan, and the role of various kinds of social infrastructure in that mitigation. Additional aspects of social infrastructure that were not considered but have been identified by Hasegawa (2013) may have had significant impacts. These include whether the tsunami warning loudspeaker in the neighborhood was operational (many were not, and evacuation began upon seeing the tsunami); whether the message was predicting an underestimate of the ultimate tsunami wave height, suggesting inaction was a viable course of action (initial estimates were low); and whether the message was delivered with sufficient urgency to prompt action (some messages were expressed as requests, not as orders).

The title of the paper contains the expression "Japan's 3/11 Disasters" and later the paper refers to "this triple disaster of earthquake, tsunami and nuclear meltdown," but it only addresses the tsunami. If the earthquake had been addressed, the likely conclusion would have been the extraordinary resilience of Japan's buildings in recent earthquakes including this one. The nuclear meltdown was foreseeable given knowledge of the tsunami generated by the 869 Jogan earthquake and the inadequate height of the tsunami walls at the Fukushima plant.

Perhaps there is an error in the following statement on page 4; the words "and negatively" may not belong:

"social infrastructure measurably and negatively correlates with reduced mortality rates"

The seawall construction described by Matanle et al. (2019) occurred following the 3/11 earthquake, so the word "demonstrated" on page 9 may be misleading because it implies that the construction was present during the 3/11 disaster.

"Japan's 3/11 disasters demonstrated how $250 billion USD invested in 40+ foot tall concrete seawalls disrupted local ecosystems, angered residents, and did little to save lives, while the intangible bonds in coastal Tohoku communities helped people survive and thrive"

Hasegawa, R. (2013). Disaster Evacuation from Japan's 2011 Tsunami Disaster and the Fukushima Nuclear Accident. IDDRI Sciences, No. 05.13, May 2013 Governance. https://www.iddri.org/sites/default/files/import/publications/study0513_rh_devast-report.pdf