Configuring evacuation infrastructure resilience

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Abstract

Many people in the world live in hazardous environments and are susceptible to disasters. In the time of a destructive event, a resilient community must be prepared, able to mitigate the event and quickly respond. An effective mitigation plan can lead to fewer fatalities and damages.

One of the most critical tasks for mitigation is the evacuation process. Wherein, short notice time, and overcrowding and pushing in crowds, bottlenecks in infrastructure and steep slopes may worsen the situation. The evacuation process encompasses, amongst other things, transportation infrastructures to be named corridors, signs, pedestrian footpaths, and/or shelter infrastructures for keeping people safe. Evacuation infrastructure can also become damaged after the event.

This paper aims to investigate evacuation infrastructure in terms of different resilience features, such as redundancy, safe to fail, readiness, capacity. A systematic methodology for reviewing articles has been implemented to understand how vulnerable cities can be more prepared, especially for pedestrian evacuation. An evacuation scoring system for pedestrians will be developed.

This study will investigate the characteristics of the available evacuation infrastructure and outlines the general drawbacks. The most practical evacuation system will be estimated with a final output being to provide the characteristics of a successful pedestrian evacuation system for future policy use.

Biography:

Azin Fathianpour is a PhD student at Massey University. She has completed her first year of study and is studying Construction Management under the supervision of Prof. Suzanne Wilkinson.