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[Abstract Title]

A framework for community-based Natech risk management: Key elements from the perspectives of local community, first responders, and government

[Abstract]

Despite extensive research on the role of local communities in disaster risk management, there are no studies regarding natural hazards that triggered chemical accidents (known as Natechs) that could be applied at the local community level. This study proposes a risk management framework that enables local stakeholders to manage Natech disaster risks and enhance local community resilience. By looking at three case studies on the activities of various stakeholders, including local citizens, first responders, and government, the required elements for developing the framework were investigated. The proposed community-based Natech risk management framework includes a Natech risk management platform that brings together regulators, natural and chemical hazard experts, industrial safety specialists, local officials, and residents to collaborate. The platform facilitates developing Natech risk management strategies, including Natech risk assessment and risk communication, involving potential human/environmental consequences. The framework calls for flexible emergency management planning that explicitly considers varying cascading disaster sequences (e.g., flood-chemical release-evacuation; vertical evacuation-chemical release-flood). Flexible systems could be supported by using real-time

data; well informed, trained and drilled citizens, responders and decision-makers; and pre-defined emergency actions for various types of scenarios. Most importantly, the framework requires collaboration/coordination of all stakeholders through mutual assistance/trust-building activities in daily life.

[Keywords]

Natech, Community-based disaster risk management, Risk governance, Chemical accidents