Build Back Better: Considering Technological (Tech) and Natech Hazards

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INTRODUCTION

• Number of natural disasters on the rise globally
• Number of technological disasters also on the rise
• Asian countries: highest chemicals industry growth in last 25 yrs
• Increase in the number of joint natural and technological accidents (Natechs)
Tech and NaTech (Natural and Technological) accidents

Tech: Deepwater Horizon oil spill, US Gulf of Mexico, 2010

Natech: Asphalt tank burned at refinery in Sendai after Great East Japan earthquake, 2011
(Source: Prof. C. Scawthorn, 2011)

Natech: Fukushima nuclear plant accident after the Great East Japan earthquake, 2011
(Source: The Telegraph, 2011)

• Low probability, high impact events
• May have long term impacts, recovery hampered
Without information on potential hazards and their consequences, there is no disaster preparedness or emergency response planning, and no recovery and reconstruction planning.

G. Landucci

*NaTech* triggered by floods

**Introduction**

*Technological and NaTech risk reduction*
• Safety management (targeted towards worker protection and accident prevention-AVOID) ⇒ stringent design codes standards, and many laws focusing on safety, but

• No specific rule targeting public protection from chemical/ Natech accidents in many countries

• Little or no requirements a. for risk assessment; and b. for industry to disclose, or governments to inform local residents
• Complexity, interdependencies, cascades ➔ risk assessment challenging
• High uncertainty regarding credible scenarios
• Low probabilities ➔ dismissing worst cases
• Unknown long term impacts/ effects
• Unknown time to recovery & reconstruction
• Requires bringing together diverse agencies and stakeholders
Some issues to highlight:

Being prepared:

• “Community-right-to-know” rules urgently needed
• Risk assessment and risk management required to inform ER and recovery and reconstruction planning
• Consideration of extreme events based on our best science and technology, acknowledging uncertainties, for BBB plans
• Risk governance and area-wide business continuity planning is needed linking industry to neighboring communities
Following disasters

• Return of experiences (REX): collecting and sharing data, information, and lessons learned on recovery and reconstruction from various sectors (Evidence based solutions)

• Promote space for research and innovation, providing solutions for now and the future (Co-design and multistakeholder processes)

• ER and recovery requires new solutions formal science and technology input strategies are key in all phases (has been crucial in ER, and should inform recovery & reconstruction)

• Metrics and minimum standards are needed to monitor progress