The priority of real-time error avoidance in disaster prevention, including errors related to climate change

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STORMS, FLOODING AND SEA LEVEL DEFENSE CONFERENCE
NOVEMBER 8 2023

Presentation Focus

We’re focusing here on one very important lesson learned from our twenty+ years of research on critical infrastructures that, we suspect, not all of you know or see at least as we do.

That lesson is. . .

It is important in planning for and acting in emergencies to avoid a set of errors that are related to the management of the interconnectivity among officially separate infrastructures, especially when the interconnections are shifting with respect to emergency situations.

In particular, new mutual dependencies in infrastructure maintenance and service restoration requirements may occur under emergency conditions.

Electric utility crews may need road clearance before they can reach and restore downed transmission lines. Water systems may need electricity restoration before they can resume water purification and pumping operations. Both may need telecommunications restoration before they can identify the location of line and water pipe breaks.

These infrastructures may need to share both priorities and resources for action with one another. But errors can and do occur that undermine the effective management of these interdependencies.

Under these conditions. . .

- It would be an error for infrastructure operators and emergency managers not to establish lateral communications with one another and undertake improvisational and shared restoration activities where needed, even if no official arrangement exists to do so.

- In addition, it would be a management error in anticipation and planning not to provide robust and contingent inter-infrastructure communication capabilities, including alternative phone connections between the control rooms of the interconnected infrastructures. This communication is greatly facilitated by establishing lateral inter-infrastructure personnel contacts prior to emergencies.

- It would also be an error not to have some contingent resources for restoration and recovery activities such as trucks, portable generators and movable cell towers in differing locations that could be made available across infrastructures if needed, particularly where chokepoints of interconnected infrastructures are adjacent to each other.

So What?

These errors are just a few, but our research convinces us that they are of primary importance are to be avoided because they can seriously degrade effective resilience in emergency prevention and responses. This is especially true, we believe, as resilience capabilities move from increasingly automated in interconnected normal operations to what is by comparison necessarily more manual operations in joint emergency prevention and restoration.