

Telecommunication – a blind spot in disaster resilience science, yet essential for disaster mitigation and recovery

During Hurricane Katrina in New Orleans in 2005, the failure of telecommunication systems was a disaster by itself, creating chaos and seriously hampering mitigation measures during and directly after the event. Half of the telecom towers was destroyed by the heavy wind, the electrical grid was destroyed and an area as large as The Netherlands and Belgium combined was flooded. The rest of the telecom towers ceased operation 48 hours later, when their backup power was depleted. In some parts of New Orleans the water stood 4.5 meters high, and debris was making roads impassable, blocking emergency repairs. This created a disaster in a disaster, leaving local authorities and first responders without intercommunication and status updates, rendering well-informed and coordinated actions impossible.

Similarly, during Hurricane Irma in 2017, on the island of St. Maarten, 50% of the telecom towers were blown over, seriously hampering communications in large sections of the island. Fortunately, the sea cables connecting the island to the rest of the world remained unharmed, although even that was a close shave. Therefore, while the mobile phone network failed in large areas, the Emergency Support Functions of the government could still communicate with the outside world via the internet, to ask for support and specific equipment for emergency repairs (such as new telecom towers).

Similarly, after the Nepal earthquake in 2015, roads were rendered impassable by debris and all telecommunication networks were silenced, and the electrical grid destroyed. The first messages to the outside world were conveyed by radio amateurs, via ionospheric radio. Several inland villages remained isolated for several days, with no means to issue a call for assistance or medical help.

Despite these and other examples, most of the models and impact chains drawn by scientist to investigate disaster events ignore the role of telecommunication failure that aggravates the situation in the field. Also, scientific tools to predict risks and support decisions when the disaster unfolds and directly after it, are often provided via internet links, ignoring the likelihood of them being inaccessible when they are needed most, due to a telecom blackout.

It is therefore of the utmost importance to draw more attention of researcher to the role of telecommunications in impact chains, even when that is not their direct competence, and to interact with telecommunication experts and emergency organizations in the field to better prepare for telecommunication failure during and after disasters. A good example of such an initiative was shown in PARATUS, a scientific project on societal resilience, where information gathering on St. Maarten specifically included telecommunication during disasters. Crossing these boundaries between sectors will greatly amplify the practical impact of the scientific work.