How the public participates in and perceives a response is key to the success of disaster risk management and thus it is important to listen to and engage with members of the public. For successful collaborative information management, this also requires widening the diversity of data and the understanding of data needs.

**Guiding Questions**

*How is the public made aware of activities of disaster risk management?*

*What might individuals and communities be able to contribute to the collaborative information management process?*

*How can information sharing acknowledge diverse understandings of risk?*

*When would an awareness of different approaches to risk by the public be beneficial to the collaboration?*

**Further Information**

In the decade 2005-2014, 1.7 billion people were affected by disasters. Around 90% of these disasters were climate-related floods, storms and heat waves, which were, with some degree of precision, predictable. Yet, even though some risks can be anticipated, residents of affected areas often do not take appropriate precautions even if they are given notice of a danger. At the same time, communities may hold significant knowledge and capacity to contribute to risk assessment, mitigation, response or recovery, they often construct their own risk assessments and are often the 'real' first responders when an incident occurs.

It is for the reasons above, that almost every post-disaster report highlights a need for better integration of affected communities in emergency management. The US Federal Emergency Management Agency (FEMA), for example, argues that natural or manmade crises (floods, storms, violent attacks) can be addressed better with a 'Whole Community' approach, where 'officials can collectively understand and assess the needs of their respective communities' and communities can play an active part in emergency planning and management (FEMA 2012). In some sense, this acknowledges communities as an agency in multi-agency crisis management. However, it is practically and politically difficult to switch from approaches focused on protecting and controlling the public to engaging with Communities and facilitating public participation. This is exacerbated by the fact that the notion of a clearly defined community whose needs can be assessed by respective officials is flawed. Innovation in 'crisis informatics' (Palen et al 2009) has made social media an

important force in connecting people within and beyond local communities. This has begun 'to fundamentally alter the very nature and arc of emergencies'(Raymond et al 2014), bringing disruptive innovation, that is, innovation that changes existing social, material and economic practices (Chesbrough 2003), to crisis management (Büscher and Liegl 2014).

## Examples

WeSenseIt is a EU-FP7 project that focuses on flood risk management and examines three case study locations: a UK case in partnership with Doncaster Metropolitan Council, a Netherlands case with UNESCO-IHE Institute for Water Education and an Italian case with the Alto Adriatico Water Authority. Using innovative low cost sensor systems, social networks via social media and mobile devices, and relevant professional and public stakeholders, the aim of the project is to develop local 'citizen observatories'  and to use 'citizens as social sensors' to strengthen water governance.

The Flood Network is a citizen science project that uses the Internet of Things (IoT), and specifically The Things Network, an open, free worldwide IoT sensor network, to connect the community with the environment. Using a long-range low-power wireless technology and low-cost, battery powered wireless sensors, the idea is that citizens, community groups and organisations are able to easily and cheaply build and install sensors at key locations in order to monitor the water level at five-minute intervals. These data are combined with Environment Agency data and shared with flood modelers and forecasters to give a near real-time picture of water levels. The project aims to enable people to monitor, share and manage water data and hence make better decisions during floods supporting and improving resilience and response.

## Resources

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