

CONTRIBUTIONS OF VOLUNTEERED GEOGRAPHIC INFORMATION TO COMMUNITY DISASTER RESILIENCE: THE GOOD, THE BAD AND THE UNCERTAIN...

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Adoption of location-based information sharing technologies, associated social practices, and emergence of volunteered geographic information (VGI), has seen changes to public involvement in disaster management (DM). The concept of resilience and the capacity for re-organisation renewal, and societal development has gained currency in DM. However, VGI, and social media efforts in particular, tend to focus on reactive response initiatives rather than preparedness and participatory practices for promoting community resilience. Through analysis of literature, policy documents and drawing on personal research experience, we critically examined and summarised how VGI supports community disaster resilience building, and, significantly, how VGI practices potentially undermine resilience.

The Good

The internet empowers individuals to organize themselves in unprecedented ways, as evidenced by the formation of spontaneous volunteering groups.

VGI enables citizens to contribute alternative representations of and responses to risk, increasing flexibility in the system with diversity of information.

Opportunities are created by Web 2.0 for collaborative DM between individuals, communities and authorities.

VGI can aid community engagement in preparation through increased awareness, local knowledge, and community connectedness.

Online platforms allow two-way sharing of local information and facilitate more open discussion of risk reduction.

Increased awareness of local risk, hazards and vulnerability through digital platforms enables individuals to make risk, planning and potential damage/impact assessments.

Web 2.0 can increase exchange of knowledge and resources, which has been associated with increased adaptive capacity.

People sharing geographic information collaboratively can add to community cohesion.

Web 2.0 results in reduced agency control over information, potentially empowering citizens through greater participation.



Capacity for self-organisation



Effective communication



Understanding risks & uncertainty



Developing flexibility



Collaboration between stakeholders



Preparation engagement



Empowerment



Social connectedness



Use of local knowledge & resources

COMMUNITY DISASTER RESILIENCE

The Bad

Digital volunteering may also undermine resilience. Various challenges require further attention, including:

- Data quality, misinformation, and trust of diverse information sources
- Potentially compromised privacy and security
- Underrepresentation of particular citizens in online information / digital divides
- Negative consequences and compounding risk associated with actions taken based on public (uncertain) information
- Responsibility of digital volunteers, liability concerns, and data ownership/management, including volunteer fatigue
- Disruptions to authoritative emergency management
- Potential for increased community tensions, reducing social cohesion and thus undermining community resilience

The Uncertain...

Recommendations and areas for future work:

- On-going cultural change involving adaption by authoritative DM to less information control and increased citizen participation may be required before VGI in DM becomes a more established field with measurable outcomes for community disaster resilience
- Incorporating awareness and training on collaborative geoweb technologies, including data ethics, effective VGI practice and potential digital footprint, into community preparedness programs will equip individuals to make informed judgements on VGI content during a disaster event and reduce unintended consequences of social media initiatives
- To harness strengths of VGI while addressing some limitations, a form of 'controlled' or 'facilitated' VGI at community scales with pre-established data systems, protocols, intended outcomes, and appropriate links to authoritative emergency management may be useful
- Can the impacts of VGI practices in DM be examined through alignment with existing indices for measuring resilience?
- Much research has focussed on data and technological components of VGI; the social and behavioural elements of VGI need greater critical analyses, including issues such as underrepresentation of the 'crowd' and nuances of power relations in online and offline social networks

Related further reading: www.billyhaworth.com/publications



VGI sharing through participatory mapping has been shown to be useful for aiding community disaster resilience, but also has limitations (Haworth, B., Whittaker, J. & Bruce, E. (2016). Assessing the application and value of participatory mapping for community bushfire preparation. *Applied Geography*, 76: 115-127).