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 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. Collaboration between



COMMUNITY DISASTER RESILIENCE

Understanding risks & uncertainty

Effective

communication

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

People sharing geographic

to community cohesion.

Increased awareness of local

risk, hazards and vulnerability

through digital platforms

enables individuals to make risk,

planning and potential

damage/impact assessments.

The Good

Online platforms allow two-way sharing

of local information and facilitate more

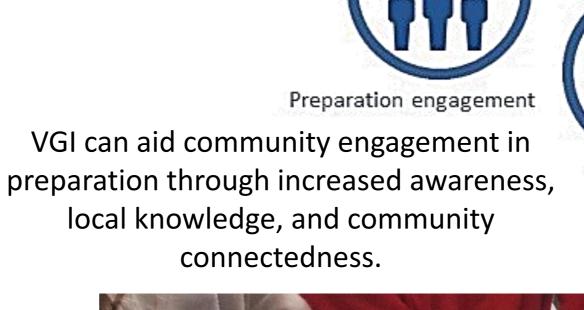
open discussion of risk reduction.

Use of local knowledge & resources

information collaboratively can add Social connectedness

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

Empowerment



stakeholders



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).

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









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