

Capturing impacts, experiences, and behaviour during disaster:

An online participation and crowdsourcing approach for resilience

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CONTEXT

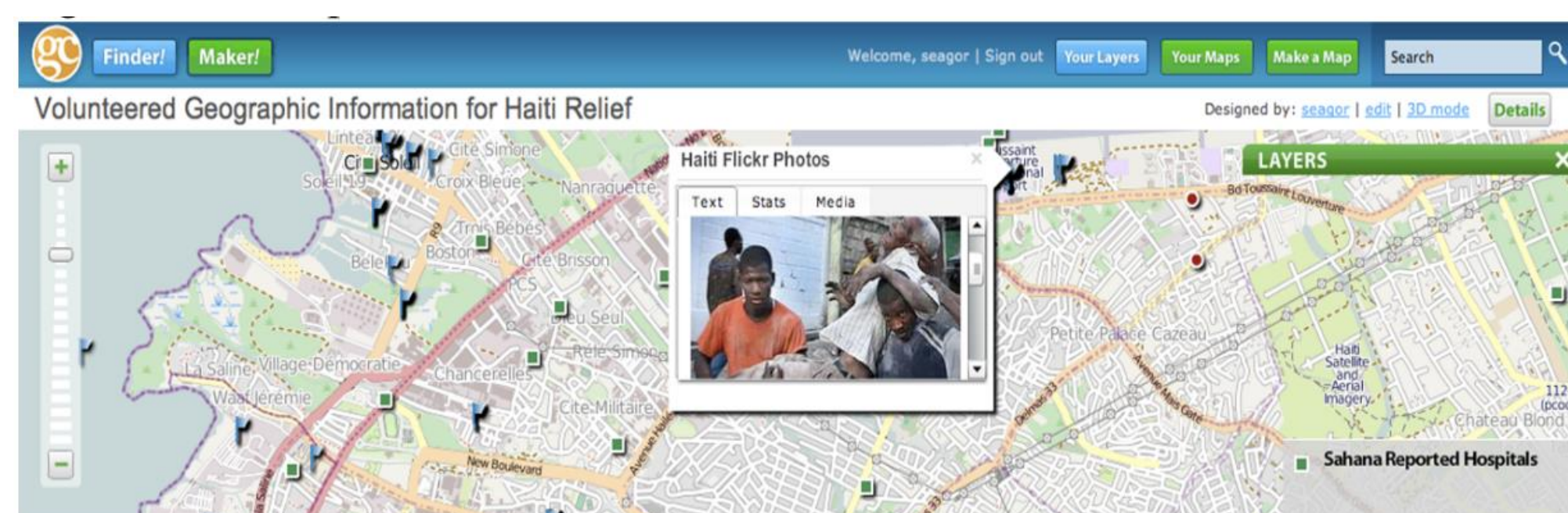
- Developing a holistic understanding of social, cultural, and economic impacts of disasters can help build disaster risk knowledge for policy making and planning.
- Many traditional methods that can help to understand the impacts of a disaster (i.e. interviews and surveys) may be invasive at times and create stress for the participants to relive their experiences.
- Online platforms that have risen in prominence and crowdsourcing mechanisms allow for the discovery of a range of impact and behavioural information, without being too invasive (but raises issues of ethics and privacy)
- This information can help researchers and authorities understand both the impacts as well as behavioural responses to hazards, which can then shape how early warning systems are designed and delivered.

IMPACT INFORMATION

Physical

- After the earthquake struck Haiti (2011), people relied on the Ushahidi platform to report impacts and needs from people on-the-ground and plot onto an interactive map

"I'm buried under the rubble, but I'm still alive,"
"our community has run out of water,"
(Zook et al., 2010, p. 23)



Source: GeoCommons. Screenshot of GeoCommons website, allowed use.

Psychological

- When Hurricane Sandy approached the eastern seaboard of the US and made landfall, people verbalised their emotional and psychological impacts on social media (Spence, Lachlan, Lin, & Del Greco, 2015)

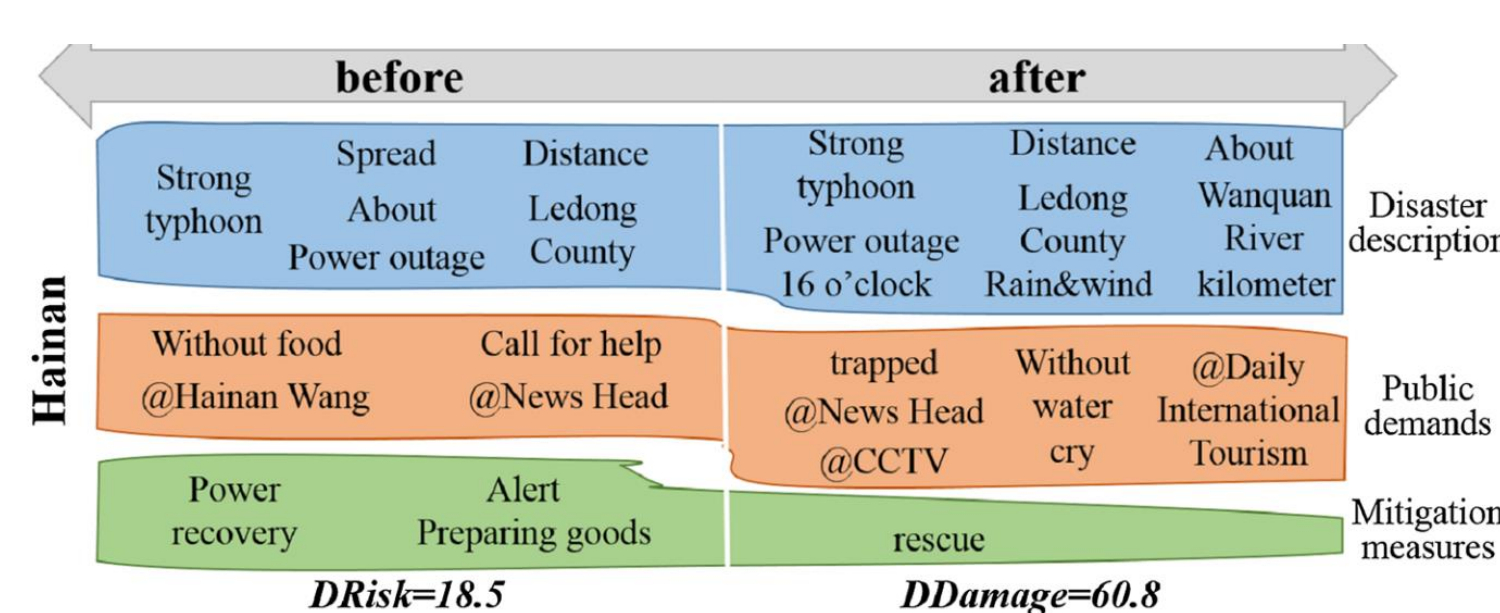
"an abundance of messages expressing fear and uncertainty"
(Spence et al., 2015, p. 180)

- Indicating the need for messaging campaigns to encourage people to remain calm and follow "tangible behavioural advice" to mitigate impacts (Spence et al., 2015, p. 180)

BEHAVIOURAL INFORMATION

Needs

- Before Typhoon Haiyan made landfall in China, semantic analysis of social media posts showed that people focused on preparation, necessities, infrastructure systems and alerts;
- After landfall, the focus shifted to basic needs and damage incurred on infrastructure systems, and the desire to return to daily life (Deng et al., 2016).



Decision-Making

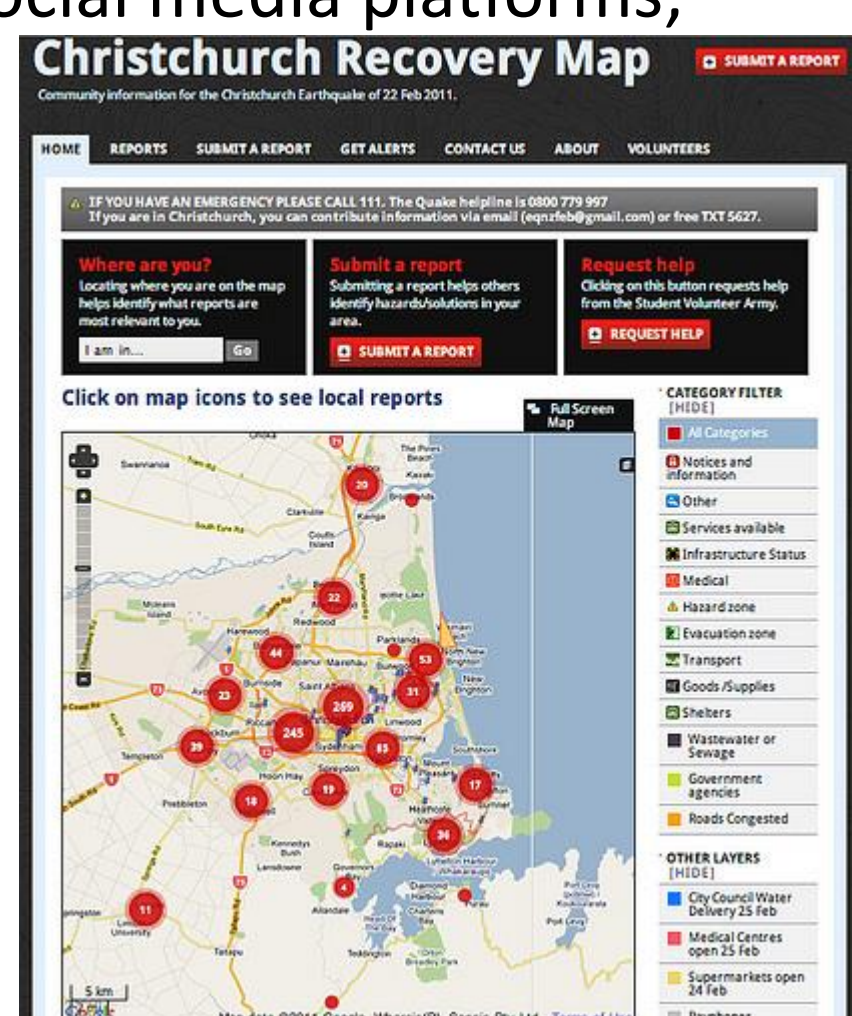
- After Hurricane Sandy made landfall, people turned to social media to share their decision to evacuate or not evacuate, and the repercussions of those decisions (Anderson et al., 2016):

"MattMinerVX (Oct 29 20:41): Why we didnt leave: 6 animals, one with special needs, could not take to shelter. Was told specifically we would be robbed if we left." (Anderson et al., 2016, p. 12)

*"Gritz718 (Oct 29 15:33): I'm not too proud to admit it... I'm starting to think I might've underestimated this storm. F*ck. #Sandy #NYC" (Anderson et al., 2016, p. 6)*

Self-Organisation

- In Christchurch, volunteers mobilised and self-organised for response and recovery efforts on social media platforms;
- Crisis mapping was also organised by several volunteer groups to map out impacts, service locations (e.g. petrol, water stations, etc.) (Beatson, Buettner, & Schirato, 2014).



DEMOCRATISING DISASTER MANAGEMENT

Top-Down vs. Bottom-Up

- Online platforms have changed the way people prepare for, respond to, cope with, and recover from disasters – people have become more engaged in the disaster management process;
- These platforms offer the opportunity for researchers and practitioners to 'listen to' those at risk or affected;
- We are seeing a shift from top-down management and communication to bottom-up, supported by these online platforms.

Multi-directional Communication

- Traditional disaster management communication has been from authorities to those at risk – these online platforms enable people to communicate back to authorities, as well as with each other (Harrison & Johnson, 2016);
- If authorities are absent from these platforms, 'information vacuums' create the need for others to step in and provide information, whether accurate or inaccurate;
- Authorities have a responsibility to be present on these platforms to prevent and control mis/disinformation (Harrison & Johnson, 2016).

Challenges

- The digital divide still leaves many affected people out of the communications network (Harrison & Johnson, 2019; Zook et al., 2010);
- Aggregation of crowdsourced information is key, as duplication can be beneficial for validation, but if it is incompatible, then it cannot be compared and analysed together (Zook et al., 2010);
- Aggregating and sharing personal and organisational impact information is still a concern, and raises ethical concerns around privacy and security (Harrison & Johnson, 2019).

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