

## Chapter 5.2 Crowdsourcing to gather data

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### Further reading

1. CrowdsourcEM Toolkit [Online resource]. <https://www.crowdsourceme.org> (accessed 22 February 2022).

**Summary of this document:** This toolkit provides further information on crowdsourcing and resources for how to set up and use crowdsourced data.

In this online resource, the authors provide a crowdsourcing toolkit for emergency managers to use during disasters and emergencies. It presents a stage-based “crawl, walk, run” method for developing crowdsourcing capabilities over time, and the toolkit provides guidance on helpful existing tools and digital volunteer networks. The toolkit describes four case studies which focus on crowdsourcing in extreme weather events in the United States.

2. Haklay M, Antoniou V, Basiouka S, Soden RJ, Deparday V, Sheely RM et al. Identifying success factors in crowdsourced geographic information use in government. 2018.  
<http://documents.worldbank.org/curated/en/387491563523294272/Identifying-Success-Factors-in-CrowdsourcedGeographic-Information-Use-in-Government> (accessed 22 February 2022).

**Summary of this document:** This is an overview of the use of ‘volunteered geographic information’ and what makes it successful. Geographic data would likely be useful in Health EDRM contexts.

In this longform report, the World Bank reviews current volunteered geographic information (VGI) projects and advises on promoting its adoption. It identifies factors for success and challenges in existing VGI projects, such as its usefulness in rapid disaster response and addressing heterogeneity. The report provides a series of case studies from 50 global examples of VGI implementation. The authors conclude that VGI can provide high-quality geographic information to governments, provided that appropriate sourcing and adoption methods are used.

3. Heinzelman J, Waters C. Crowdsourcing crisis information in disaster-affected Haiti. Washington, DC: US Institute of Peace. 2010.

**Summary of this document:** Heinzelman & Waters provide a detailed example of how Ushahidi, a crowdsourcing tool, was used in the response to the 2010 Haitian earthquake.

In this short report, the authors discuss the challenges of Haiti’s existing information-sharing system, which did not adequately allow for local intelligence. The authors conclude with a series of recommendations and lessons learned, emphasizing the importance of building up networks of verified community reporters.

4. Mavandadi S, Dimitrov S, Feng S, Yu F, Sikora U, Yaglidere O et al. Distributed medical image analysis and diagnosis through crowd-sourced games: a malaria case study. PloS ONE. 2012: 7(5): e37245.

**Summary of this document:** In this short article, the authors discuss the possibility of using games to obtain crowdsourced medical image analysis. It describes a malaria diagnosis game given to non-experts. The authors found that, with practice, the accuracy of non-experts could approach that of a medical professional. The authors conclude that this concept has potential for training machine learning algorithms and may be used for direct patient diagnosis in the field.

5. Wazny K. Applications of crowdsourcing in health: an overview. Journal of Global Health. 2018: 8(1): 010502.

**Summary of this document:** In this narrative review, the authors searched for studies on crowdsourcing in health. They restricted their searches to articles published up to August 2015 and identified 285 articles. They found that crowdsourcing is primarily used in eight areas: (1) diagnosis, (2) surveillance, (3) nutrition, (4) public health and environment, (5) education, (6) genetics, (7) psychological, and (8) general medicine. Crowdsourcing has the potential to provide more accessible health care to more communities and individuals rapidly and to lower costs of care.

6. Ushahidi. 10 years of innovation. 10 years of impact. 2018.  
<https://www.ushahidi.com/blog/2018/10/31/10-years-of-innovation-10-years-of-global-impact>  
(accessed 22 February 2022).

**Summary of this document:** This is a review of 10 years of a common open-source crowdsourcing platform that can be easily adapted for Health EDRM settings.

In this report, the creators of Ushahidi describes the history and impact of Ushahidi, a digital crowdsourcing platform. It describes Ushahidi's origins in monitoring post-election violence in Kenya and subsequent accomplishments. It then describes Ushahidi's uses and applications over the past 10 years, including in humanitarian crises and political unrest. The report includes with Ushahidi's future directions, including improving reach and introducing new products for community group use. The use of Ushahidi and similar crowdsourcing platforms can provide high-quality, critical information in acute crises.

7. Zook M, Graham M, Shelton T, Gorman S. Volunteered geographic information and crowdsourcing disaster relief: a case study of the Haitian earthquake. World Medical and Health Policy. 2010: 2(2): 2.

**Summary of this document:** In this short article, the authors describe the use of crowdsourced volunteered geographic information (VGI) tools after the 2010 Haiti earthquakes. It begins by outlining the history of crowdsourced information technology use in disaster responses. It then describes four crowdsourcing tools that were used, namely CrisisCamp Haiti, OpenStreetMap, Ushahidi, and GeoCommons. The use of crowdsourcing increased the availability of geo-coded data in Haiti and assisted disaster response efforts.