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Lessons from Haiti and Beyond: Report from the 2010 International Conference on Crisis Mapping

Summary

- Crisis mapping is a growing field that seeks to leverage mobile platforms, computational models, geospatial technologies, crowdsourced data, and visual analytics to power effective early warning for rapid response to complex humanitarian emergencies.
- The second International Conference on Crisis Mapping convened from October 1 to 3, 2010, to discuss lessons learned from past and present initiatives and strategies for moving the field forward. Over 250 participants from major international organizations, the technology community, universities, and NGOs attended.
- Some of the main themes from the conference included the need to design environment-appropriate technologies, improve analysis tools and systems, create standards for the emergent field, engage local populations, and gain a better understanding of the challenges of operating in complex political environments.

“The focus of crisis mapping should be to support human networks with technology.”

ICCM 2010 Background

Over 250 participants from around the world gathered in Boston for the second annual International Conference on Crisis Mapping (ICCM) at Tufts and Harvard Universities from October 1 to 3, 2010. The conference, an outgrowth of The International Network of Crisis Mappers (www.crisismappers.net), was launched at the end of the first conference held at John Carroll University in October 2009, and cofounded by Jen Ziemke and Patrick Meier. The network serves as a hub for professionals from the humanitarian, human rights, policy, technology, and research communities and has over 1,000 members in more than thirty countries across six continents.

ICCM 2010, which was partially funded by a grant from the United States Institute of Peace, drew participants from several UN agencies (including the Secretary General's Office, OCHA, UNDP, UNICEF, UNHCR, and the WFP), the World Bank, USIP, ICC, NATO, Google, Microsoft, ESRI, Amnesty International, Ushahidi, and Internews, among other organizations and universities.

“Haiti and Beyond,” the topic of this year's conference, followed the high-profile use of crisis mapping in response to the Haiti earthquake as detailed in the USIP Special Report “Crowdsourcing Information in Disaster Affected Communities.” ICCM provided participants an opportunity to discuss the lessons learned in Haiti as well as the challenges and opportunities for crisis mapping as a developing field.

Lessons Learned

1) Standardization will improve collaboration and increase effectiveness

Due to the emergent and dispersed nature of the crisis mapping field, individuals generally begin working on tasks without sufficient knowledge of similar initiatives. This was particularly evident in Haiti when many such previously disconnected actors sought to collaborate but faced challenges merging the various technologies and output formats. For example, based on satellite imagery and contacts in Haiti, Open Street Map (OSM) was mapping the locations of internally displaced persons camps, hospitals, and other resources. Because OSM was being used as the base map for Ushahidi, the camps were visible online and overlaid with reports from the population. However, because the platforms were not fully interoperable, geographic data from OSM could not be included in the Ushahidi database and was not searchable. There was no way of generating lists of camp or hospital locations through either platform. This made it difficult to provide the information to those who would have benefited from what had become one of the most comprehensive lists of post-earthquake infrastructure. Quick fixes were created to facilitate collaboration, but these adjustments were based on the need for immediate functionality rather than the kind of true interoperability needed for long-term effectiveness.

While the creation of multiple platforms is beneficial to the advancement of the field, the adaptation of technologies that can be used in tandem is crucial. Users will obtain the highest benefit if they are able to mix and match tools according to their needs. Unfortunately, the cooperation needed for the creation of truly interoperable tools is difficult to obtain. Competition for recognition and funding often deter collaboration. There is also a concern that integrating into large institutional structures could impede the crisis mapping community's flexibility and capacity for innovation. A balanced approach will be needed in order to maximize the potential benefits of crisis mapping through ongoing collaboration.

Humanitarian organizations can play a critical role in mitigating the negative effects of competition. These institutions can help encourage dialogue around standardization and interoperability with the aim of integrating a variety of tools into existing systems. This was evident at the conference where representatives from the UN and FEMA emphasized the positive role crisis mapping can play if data is presented in a way that organizations can consume. For instance, a study presented at the conference demonstrated a correlation between SMS traffic patterns (the volume of texts from different locations) and actual collapsed building reports that might aid future responders in triaging their efforts.¹ In order to take full advantage of this type of useful information, participants from humanitarian organizations outlined the need for standards—both technical and ethical—around the use of this data.

2) Design for the environment

Successful crisis mapping initiatives work toward understanding project environments and designing low-tech environmentally appropriate systems. The ability to operate crisis mapping initiatives remotely has opened opportunities to engage smart and enthusiastic help from around the world, but has also created an asymmetry in technology that can render efforts ineffective. In Haiti, volunteers with high-speed Internet connections were pushing out information as quickly as possible. Emergency responders on the ground, however, struggled to use this information, as Internet downloads were slow and response teams lacked the time to sort through information.

Participants involved with projects other than the Haiti disaster response underscored that, although cutting-edge crisis mapping technologies are innovative and exciting, simpler solutions

were often more successful and cost effective. For example, Map Kibera in Kenya, is balancing the use of technology with its limitations in Nairobi's largest slums.² At the beginning of the project, the Kibera settlement was a blank spot on most maps. With no geographic data, crisis mapping tools were irrelevant. The Map Kibera project set out to build a community map by teaching a small group of residents from the community to use hand-held GPS units, and then provided funds for uploading geographic data—such as main thoroughfares, neighborhood divisions, and landmarks—at a local Internet café. They also engaged the broader community through participatory GIS workshops to create paper maps of local issues such as security, health, water and sanitation, and education.

3) Improve analytic tools and training to help make sense of crisis data

In an era of data deluge, there is a critical need for better tools and training for analyzing crisis information. Current analytic tools are complex and a limited number of trained analysts are often overwhelmed by the amount of information that needs to be processed during a crisis.

The development of a few simple, shared analytic tools and training sessions could help crisis mapping initiatives create greater value from information collected. For small projects, implementers could easily gain the skills needed to interpret data. For larger projects, providing minimal training to committed volunteers could improve their ability to supply initial analysis. At ICCM, participants launched the Standby Task Force to fill this void by proactively recruiting and training a volunteer analysis team able to alert actors on the ground to the events that signal a critical qualitative change in the character of evolving crisis situations.³

4) Crisis mapping technologies should empower affected populations

The focus of crisis mapping must be on supporting human networks with technology. Project implementers stressed that without buy-in from local populations, valuable crisis mapping tools will likely not be used.⁴ In order to avoid this pitfall, communities must be engaged at all stages of the project and technical design process to ensure that crisis mapping efforts are in line with local incentives and capacities.

Examples were given of how crisis mapping projects are engaging local populations to improve their capacities to help themselves. The leaders of Ushahidi's early warning project in Liberia spent months visiting NGOs and civil society groups to demonstrate the crisis mapping platform and gauging if and how the local communities could use it. This community-driven approach has brought fourteen organizations into a network contributing data to a multilayered map that will serve as a central nervous system for early warning signs of conflict as the nation approaches elections in 2011.⁵

While the majority of crisis mapping tools are developed outside the communities that aim to serve, local technology oriented communities can and should be engaged. Local talent has designed some of the most popular and transferable crisis mapping tools, such as Ushahidi, created by Kenyans during the postelection violence of 2008. The international crisis mapping community can play an important role in facilitating such initiatives by holding "bar camps" and "hack-a-thons"—gatherings of local software developers to brainstorm and design, among other things, locally viable applications. Such events held in Haiti and Chile have been well received and allowed crisis mappers to engage local developer talent and highlight opportunities for them to help their own communities. The UN's Global Pulse initiative is also launching training programs to build capacity at the country-level to achieve similar goals.⁶

5) Clarify best practices for crisis mapping projects in complex political environments

Many lessons highlighted by the crisis mapping community leading up to ICCM emerged from experiences with crisis mapping in disaster response. While numerous insights are transferable, a growing number of crisis mapping initiatives are operating in complex political environments—such as conflict zones and repressive regimes—and facing distinctly different challenges, including elevated security concerns and the absence of accurate data.

In many conflict settings, distrust and fear of retribution can impede participation in crisis mapping projects. Digital Democracy, while sharing lessons from their project in Burma, emphasized that building community relationships was the only way to access information.⁷ Maintaining confidentiality and protecting local partners constitutes a significant concern. However, most communication platforms available for crisis mapping in these environments do not offer anonymity to users working via SMS, email, or radio.

Conflict also limits the ability to gather geographic data. Maps are often outdated or severely incomplete and parties to the conflict are often reticent to share proprietary data. The absence of roads, mountain ranges, and other geographic details on a map fundamentally distorts the way data is interpreted.⁸ Alive in Afghanistan, an elections monitoring project, notes that while other projects have engaged populations in grassroots mapping projects, conflict zones are different. As Todd Huffman mentioned in his Ignite Talk during the conference, “a GPS unit in the hands of a local can get someone shot.”⁹

Finally, damaged or restricted infrastructure also impedes crisis mapping in conflict zones. Closed societies, by definition, exercise strict control on internet access. Combined with war-damaged infrastructure and power grids, the work becomes almost impossible, requiring much more time and creativity for implementation. Here, especially, implementers can benefit from discussing common challenges and strategies.

Conclusion

The annual ICCM conference series offers participants an opportunity for discussion and creative problem solving. It also serves as an incubator for new partnerships. While participants agreed that it should be continued on an annual basis, they also felt that more frequent gatherings were needed. Regional crisis mapping events could foster continuous improvement in the field and more localized venues would enable increased participation of the humanitarian community and local populations.

Crisis mapping is a new, cross-cutting field with enormous potential. However, humanitarians, local communities, and technologists need to collaborate more closely in order to improve the impact of this field. Efforts should also be made to expand the community further. New perspectives from experienced organizations would offer valuable “ground-truths” with which to inform the growing community of practice.

Endnotes

1. Patrick Meier, “How Crowdsourced Data Can Predict Crisis Impact: Findings from Empirical Study on Haiti,” <http://irevolution.wordpress.com/2010/10/13/crowdsourced-prediction/>.
2. Map Kibera, <http://mapkibera.org>.

ABOUT THIS BRIEF

At the International Conference on Crisis Mapping (ICCM) held from October 1 to 3, 2010, researchers and practitioners in the humanitarian and technology fields presented their current work in crisis mapping. This Peace Brief summarizes the overall lessons learned in the field of crisis mapping as identified through presentations, panel discussions, and community-led break-out sessions in the 2010 conference. It is written by Jessica Heinzelman and D. Roz Sewell, masters students at the Fletcher School of Law and Diplomacy, in collaboration with Patrick Meier and Jen Ziemke, co-founders and co-directors of the International Network of Crisis Mappers.

Watch presentations from ICCM 2010 at www.CrisisMappers.net/ Video for further details.

3. The Standby Task Force: Online Volunteer Community for Live mapping, <http://blog.standbytaskforce.com>.
4. Based on the important role played by the Haitian diaspora in generating, translating, and mapping reports following the Haiti earthquake, the conference participants noted that “local” networks were not necessarily limited by geography. Crisis mapping projects should consider if and how dispersed populations can also assist or benefit from tools.
5. Ushahidi, “Monitoring the 2011 Elections in Liberia,” <http://liberia2011.usahidi.com/>.
6. United Nations, “Global Pulse: Harnessing innovation to protect the vulnerable,” www.un-globalpulse.org/.
7. Digital Democracy, <http://digital-democracy.org/>.
8. Todd Huffman’s Ignite Talk at ICCM can be found at crisismappers.net/video.
9. Ibid.



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