

Conflict and disaster management in a hyperconnected world - cooperative, collaborative, real time

Stephen Collins

“Only connect! That was the whole of her sermon. Only connect the prose and the passion and both will be exalted, and human love will be seen at its height. Live in fragments no longer.”

- EM Forster, *Howard's End*

Engagement with connected networks of volunteers outside the official civil-military sector has the potential to see a measurable increase in situational awareness during ongoing and emergent crisis situations. These networks, their culture and the tools they use offer civil-military actors a set of opportunities to improve conflict and disaster response only rarely taken advantage of in current conflict and disaster responses.

In the 21st Century, active and ongoing participation in a diverse and connected network, the use of social tools and a familiarity with the culture of sharing and openness that accompanies them should be no less core skills for members of the civil-military community than use of email or the web; digital literacy, active digital citizenship and involvement with relevant networked communities is a key competency for knowledge workers and field operatives alike.

A brief history of hyperconnectivity

The term *hyperconnectivity* refers to individuals, communities and organisations becoming a part of near-constantly connected networks facilitated by tools such as mobile telephony, email, the web as well as face-to-face presence, where awareness of situation and availability of information and knowledge has reached a near-commodity state.¹

Hyperconnected individuals (in which I include the organisation and community as identifiable individuals in their capacity as actors) rely deeply on their networks of connections - both close and weak - to ensure their awareness of the world around them is constant and pervasive, that they can contribute to and receive input from their networks to solve problems and that they are equipped with the capacity to actively participate in a universal public sphere.²

Hyperconnectivity is exhibiting emergent effects we could not have been aware of before we

¹ Wellman, B June 2001, 'Physical Place and Cyber Place: The Rise of Networked Individualism', *International Journal of Urban and Regional Research* 25 (2): 227–52. doi:[10.1111/1468-2427.00309](https://doi.org/10.1111/1468-2427.00309).

² Habermas, J 1962 trans 1989, *The Structural Transformation of the Public Sphere: An Inquiry into a category of Bourgeois Society*, Polity, Cambridge.

had access to the network; its very existence, and the connections it affords, is changing the way we do things.³ We now have the capacity to distribute, share and leverage information and knowledge in ways and at a speed inconceivable only 10 years ago.

In his book, *Cognitive Surplus*, New York University academic Clay Shirky states of our post-industrial world that we have spent a generation soaked in a stupor of passive television watching.⁴ He points out that the capacity for us to spend those idle hours producing some form of value was diminished for nearly 50 years through the use of television as social surrogate, replacing time performing active roles in our communities and with friends and family. He goes on to note that the availability, certainly in the West, of pervasive fast Internet connections has permitted us to emerge from that stupor and spend those hours building things of value to humanity - things such as Wikipedia, the single greatest source of knowledge we have, the English language version of which has been built on 100 million hours or thereabouts of human effort and is recognised as being as valid or more so than the gold standard, the *Encyclopaedia Britannica*.⁵

Sharing information is a quintessentially human act - a thing buried so deeply in us that we do it without thinking, and often forget that many of the structures around us, especially in recent times, are explicitly built to prevent us from sharing. Those structures - rules, policies, organisations, management - perpetuate what is now a myth: that knowledge is power. In a world where access to factual knowledge is approaching commodity status, *sharing, collaboration and making sense of knowledge is the true root of power.*

Civil-military actors and hyperconnectedness

National and international responses to conflict and disaster are highly interdependent and need to be connected. A combined civil-military response where government and non-government organisations across several sectors work collaboratively in a whole-of-sector way in order to achieve the best possible outcomes is critical. Directly involving the wider connected networks of the volunteer technical communities (VTCs), leveraging the capacity, skills and availability of them, is an addition to the mix still not widely understood or used.

Civil-military actors belonging to agencies in the government, police, international organisations such as the United Nations (UN) and in the non-government organisation (NGO) sector often have low familiarity with social technologies beyond personal use of tools such as Facebook. These include a lack of skills; organisational policies with respect to access and permitted use; and over-zealous security (often about the perceived danger of social tools); and unhelpful or misinformed official or even informal opinions about the value volunteer and other communities with a technical bent bring to the disaster and conflict management sector.

There is a general lack of awareness of what benefits and advantages social technologies and engagement in their accompanying networks might bring and the familiar, path-dependent ways of operating can preclude the more agile approach that is seen in the way

³ Pesce, M 2006, *Hyperpeople*, viewed 28 April 2010, <http://blog.futurestreetconsulting.com/2006/05/07/hyperpeople/>.

⁴ Shirky, C 2010, *Cognitive Surplus: Creativity and generosity in a connected age*, Penguin Press, New York.

⁵ Giles, J December 2005, "Internet encyclopedias go head to head". *Nature* 438 (7070): 900–901. doi:[10.1038/438900a](https://doi.org/10.1038/438900a)

hyperconnected networks are able to respond in their operations.

Their organisations are unaware of or not able to make full use of social tools in their business-as-usual work for a number of reasons.⁶ In many cases, the agencies are not, or do not, consider themselves a part of a hyperconnected community. It is not apparently a deliberate position, it simply is a matter of perception. It is a perception that would benefit from change.

Effective communication means using all available channels that offer an operational advantage. If civil-military personnel and their agencies made an active effort to understand and become a part of this global, connected community, they could open themselves to a world of information, knowledge, technology and skills that has the capacity to source, gather, identify and validate information on a scale and with a rapidity previously not possible. Certainly, in relation to conflict and disaster situations, the capacity to gather, filter and act on emergent information from a wide range of sources in what are inevitably difficult circumstances makes the work of first responders more likely to be successful.

In the past several years, it has been an observable fact that news breaks first, and much detailed information can be gleaned, through the network of individuals in our online social networks; first via our connections on services such as Twitter and Facebook, then outward, as more detail is collected through online analysis from subject matter experts and then, finally, via the traditional news media. While for most of us, it is rarely first- or second-order connections that are the news breakers, or sources of primary information, very often it is those strong ties from whom we hear news first, as they pass on information from weaker ties further out in our networks. This is a well-researched matter of fact, most notably identified by Stanford University's Mark Granovetter as far back as 1973 in his paper *The Strength of Weak Ties* and subsequently through his later research and that of others.⁷

With respect to the recent outbreak of unrest in Libya, the UN Office for the Coordination of Humanitarian Affairs (OCHA) explicitly requested that the Standby Task Force (SBTF), a volunteer group with expertise in crisis mapping and information management, be activated. The SBTF raised a global team of almost 400 trained volunteers and created the Libya Crisis Map to provide live mapping of emergent information about the conflict coming from the international news media, social networks such as YouTube, Facebook and Twitter, blogs and other sources including telephone and SMS.⁸ This knowledge, validated and managed through SBTF's well-understood processes, was then provided back to OCHA to facilitate knowledge gathering in a situation where the UN had few feet on the ground.⁹ OCHA's Andrej Verity states:

"In addition, we requested the SBTF to help with collection of Who's-doing-

⁶ Lampe, C, LaRose, R, Steinfeld, C and DeMaagd, K 2011, "Inherent barriers to the use of social media for public policy informatics", *The Innovation Journal: The Public Sector Innovation Journal*, Volume 16(1), 2011, article 6.

⁷ Granovetter, MS 1973, "The Strength of Weak Ties", *Amer. J. of Sociology*, Vol. 78, Issue 6, May 1360-80. Shirky, op.cit.

Benkler, Y 2006, *The Wealth of Networks: How Social Production Transforms Markets and Freedom*, Yale University Press.

⁸ Libya Crisis Map 2011, viewed 28 April 2011, <http://libyacrisismap.net/>.

⁹ Iacucci, AA 16 March 2011, *The Libya Crisis Map Information Flow*, Standby Task Force, viewed 28 April 2011, <http://blog.standbytaskforce.com/?p=404>.

What-Where (3W) information and baseline indicators values. Within 48 hours, we had 100+ activities collected and compiled. Let's put that in perspective: the same amount of data took about 4 weeks in the Philippines, 2 weeks in Haiti, and 2 weeks in Pakistan to be made available. See an improvement? Combining this data with Libya Crisis Map, we can now overlay the reported health needs with the actual health response – gap analysis. In regards to the baseline indicator compilation task, it had never been done before so I cannot even compare it to past experience. More future potential.”¹⁰

People involved in the connected community have for some time been aware of the power of social networks to support and inform action in times of disaster and conflict. As early as the response to the Indian Ocean tsunami of 2004, and the 2007-2008 post-election crisis in Kenya and the 2008 Sichuan earthquake there are well-researched examples of connected communities coming together¹¹ to respond in what has been referred to by Harvard academic, Yochai Benkler as the “networked public sphere”.¹²

Many of the networking tools currently in use to assist in crisis management such as Sahana, Ushahidi, SwiftRiver and Medic Mobile for example,¹³ have emerged not only from the crises they were built to help with, but also from individuals and groups who are a part of already existing communities involved in the Free and Open Source Software¹⁴ (FOSS) sector. It is for this reason that these tools remain open source and free of charge today and continue to be built or improved thanks to the cognitive surplus of the communities around them, put to good use for the betterment of humanity.

When shown the range of skills, information and knowledge brought by the unofficial contributors to disaster and conflict responses such as Haiti, the recent Japanese earthquake and tsunami and the ongoing Libyan situation and other events in the Middle

¹⁰ Verity, A 30 March 2011, *What the UN could not have done without the Volunteer Technical Community*, UN Dispatch, viewed 28 April 2010, <http://www.undispatch.com/disaster-relief-2-0-what-the-un-could-not-have-done-without-the-volunteer-technical-community>.

¹¹ Sahana Software Foundation 2010, *About the Sahana Software Foundation*, viewed 5 May 2011, <http://www.sahanafoundation.org/node/5>.

Mäkinen, M and Kuiru, MW July 2008, "Social Media and Postelection Crisis in Kenya", *The International Journal of Press/Politics*, July 2008; vol. 13, 3: pp. 328-335. doi: [10.1177/1940161208319409](https://doi.org/10.1177/1940161208319409).

Lafargue, J 2009, *The General Elections in Kenya, 2007*, African Books Collective.

Goldstein, J and Rotic, J September 2008, *Digitally Networked Technology in Kenya's 2007–2008 Post-Election Crisis*, The Berkman Center for Internet and Society. <http://unpan1.un.org/intradoc/groups/public/documents/un-dpadm/unpan042523.pdf>.

Meier, P 23 October 2008, *Crisis Mapping Kenya's Election Violence*, iRevolution.net, viewed 28 April 2011, <http://irevolution.net/2008/10/23/mapping-kenyas-election-violence/>.

Scoble, R 12 May 2008, *Twittering the earthquake in China*, Scobleizer, viewed 28 April 2011, <http://scobleizer.com/2008/05/12/quake-in-china/>.

The Online Journalism Blog 12 May 2008, *The Chinese earthquake and Twitter – crowdsourcing without managers*, Online Journalism Blog, viewed 28 April 2011, <http://onlinejournalismblog.com/2008/05/12/twitter-and-the-chinese-earthquake/>.

¹² Benkler, op.cit.

¹³ Ushahidi 2011, *About Us*, viewed 5 May 2011, <http://www.usahidi.com/about-us>.

SwiftRiver 2011, viewed 5 May 2011, <http://swift.usahidi.com/>.

Medic Mobile 2011, viewed 5 May 2011, <http://medicmobile.org/>.

¹⁴ Wikipedia 2011, *Free and open source software*, viewed 6 May 2011, http://en.wikipedia.org/wiki/Free_and_open_source_software.

East,¹⁵ there is a tendency amongst many civil-military authorities to accord little value and credence to what has been gathered and made sense of by communities such as CrisisCommons, CrisisMappers, the SBTF, and others.¹⁶ There remains a view that information and knowledge, from unofficial sources lacks validity, despite the substantial governance surrounding the manner in which it is collated, managed and verified. This view seems rooted in the previously noted lack of familiarity with networked culture and tools and may be exacerbated by a lack of time available to civil-military personnel to pursue new ways of accessing information, even when away from deployments.

This is not universally the case; the Libya Crisis map and OCHA's involvement has already been mentioned, and in the case of the recent Japan tsunami and earthquake, the initial Ushahidi map created by OpenStreetMap volunteers, is now a recognised tool in use by the Japanese government.¹⁷ Similarly, the flood map created by the Australian national broadcaster, the ABC, has been recognised by authorities including the Queensland Police Service (QPS) as an invaluable resource.¹⁸

Oddly enough, or perhaps not, there is more than a passing relationship to the way in which knowledge and information is aggregated and understood by VTCs using tools such as Ushahidi and the well-understood concepts of network-centric operations. Information gathering is pushed to the edge of the network, right where the action is, and aggregated and understood through the use of networked tools to significantly enhance situational awareness. The Australian Defence Force (ADF) stated explicitly in its *Force 2020* paper that:

*"Network-enabled operations will provide us with a new type of advantage. This advantage will enable our commanders to achieve 'decision superiority' – the ability to make better, faster decisions, based upon more complete information..."*¹⁹

The low level of awareness of the VTCs, the culture of hyperconnectedness, the power and capacity of networked communities to add significant value to efforts in many endeavours, and the generally low level of skill associated with use of social technologies are glaring

¹⁵ UN Office for the Coordination of Humanitarian Affairs, United Nations Foundation, Vodafone Technology Partnership and Harvard Humanitarian Initiative March 2011, *Disaster Relief 2.0: The Future of Information Sharing in Humanitarian Emergencies*, United Nations Foundation.

Meier, P 16 March 2011, *Crisis Mapping Japan's Earthquake and How You Can Help*, Ushahidi, viewed 28 April 2011, <http://blog.ushahidi.com/index.php/2011/03/16/crisis-mapping-japans-earthquake-and-how-you-can-help/>.

Meier, P 4 March 2011, *Crisis Mapping Libya: This is No Haiti (Updated)*, iRevolution, viewed 28 April 2011, <http://irevolution.net/2011/03/04/crisis-mapping-libya/>.

The Standby Task Force 5 February 2011, *The security and ethics of live mapping in repressive regimes and hostile environments*, The Standby Task Force, viewed 28 April 2011, <http://blog.standbytaskforce.com/?p=259>.

¹⁶ CrisisCommons 2011, viewed 5 May 2011, <http://crisiscommons.org>.

CrisisMappers Net 2011, viewed 5 May 2001, <http://www.crisismappers.net/>.

The Standby Task Force 2011, *About*, viewed 5 May 2011, http://blog.standbytaskforce.com/?page_id=2.

¹⁷ Sinsai.info, viewed 6 May 2011, <http://www.sinsai.info/ushahidi/>.

Seki, H 20 April 2011, *Crisis Mapping Japan*, Ushahidi, viewed 6 May 2011, <http://blog.ushahidi.com/index.php/2011/04/20/crisis-mapping-japan/>.

Meier, P 4 May 2011, *Video: Changing the World, One Map at a Time*, iRevolution.net, viewed 5 May 2011, <http://irevolution.net/2011/05/04/video-changing-the-world-one-map-at-a-time/>.

¹⁸ ABC 2010, *Queensland Flood Crisis Map*, viewed 6 May 2011, <http://queenslandfloods.crowdmap.com/>.

¹⁹ Department of Defence June 2002, *Force 2020*, Department of Defence, Canberra, p 20.

gaps in the official civil-military community. While there are certainly many individuals with strong skills and general digital literacy, involvement with relevant online communities is anecdotally low amongst civil-military officials in government organisations, in policing, and in NGOs. It is a matter that requires remedy. And it is a remedy that is not overly difficult to implement.

A report in *FastCompany* magazine in early May 2011 outlines actions by the US State Department to embrace the culture, tools and communities working with and around conflict and disaster mapping in an effort to ensure that the US Government is in the best possible position to leverage knowledge held by professional civil-military officials and the technical skills, knowledge and willingness to act in the various VTCs.²⁰

After running a test event, The State Department is adopting what is known as the BarCamp model - a collaborative “unconference” where any attendee may contribute a talk up to 20 minutes.²¹ The State Department will run several events around the world in order to bring together officials and volunteers as well as organisations such as the World Bank and USAID in order to try to find the next Ushahidi or Sahana. Only this time, they intend to do so outside the pressure cooker of an emergent disaster - the catalyst for the creation of many of the existing tools.

State’s Director of eDiplomacy, Richard Boly notes of this effort:

“We saw the ability of digital natives and the networked world, using lightweight and easily iterated tools, to do something rapidly that a big organization or government would find difficult, if not impossible, to do. The question is: Can we get that same magic to happen when people aren’t dying?”²²

Understanding the various unofficial actors

The UN’s *Disaster 2.0* report and others such as that by the World Bank’s research facility, the Global Facility for Disaster Reduction and Recovery (GFDRR), gather the various groups acting in networked crisis management as “volunteer and technical communities”. While VTC is useful as a generalisation, it is no more than that. Each of the identifiable communities is quite different and fulfils equally different roles.

In a response to the *Disaster 2.0* report, Ushahidi Director of Crisis Mapping and Partnerships, Patrick Meier notes this conflation, seeking to clarify the confusion:

“CrisisMappers is a horizontal network of humanitarian practitioners, technologists, researchers and volunteers. Ushahidi is a 501c3 organization that describes itself as a non-profit technology company. OpenStreetMap is a volunteer project, while Sahana is a software company that creates a Free and Open Source Disaster Management system. CrisisCommons is a technical community of volunteers and so on. Placing all these actors in the

²⁰ Boyd, EB 3 May 2011, “State Department Is Trying To Make A Thousand Ushahidis Bloom”, *FastCompany*, viewed 4 May 2011, <http://www.fastcompany.com/1751308/state-department-is-trying-to-make-a-thousand-ushahidis-bloom>.

²¹ Wikipedia 2011, *BarCamp*, Wikipedia, viewed 5 May 2011, <http://en.wikipedia.org/wiki/BarCamp>.

²² Boyd, loc. cit.

same basket is not particularly appropriate since some of these organizations/networks are not volunteers."²³

As noted, OCHA has recognised that in the case of the Libya Crisis Map, actively collaborating with the volunteer communities offers them the capacity to build intelligence and respond significantly faster than was ever previously possible. In this and other examples including Haiti, the Pakistan floods, floods in Queensland, the Japanese earthquake and tsunami and several conflicts including the Kenyan elections and the 2011 Arab Spring uprisings throughout the Middle East, the VTCs have proven capable of gathering large amounts of data, filtering and validating it and making it available both to crisis responders and to the public.

There are significant opportunities to be realised and much to be learned if official civil-military actors build familiarity and collaborations with these communities - they are well-trained, highly motivated and have a notable skill set that responders can utilise to measurably increase the effectiveness of responses. Heather Leson, a Toronto based crisis mapper and volunteer leader with both CrisisCommons and the SBTF notes:

*"Volunteers exhibit respect for existing institutions, they follow protocols and hierarchy (essentially, they want to work within the systems to share their knowledge)."*²⁴

The tools of crisis coordination

So too, the various tools of networked crisis response are very different to each other, though many of them will interoperate, enhancing each other and ensuring that responders are in a strong position when gathering, analysing and interpreting the rapidly emerging and frequently changing information inherent in conflict and disasters.

While already richly used by the networked communities, and in increasing use by OCHA, the US State Department and others, there is far too little knowledge and little to no use of these tools amongst Australian civil-military officials. More than anything, this represents a significant missed opportunity; we could be building real technical skills in the use of these tools, and in concert with the interaction with the volunteer communities already mentioned, making significant gains in civil-military intelligence gathering and data management capacity.

Bringing the civil-military community into the networked world

It is critical that the individuals and agencies in the civil-military sector become mature users of these technologies, familiar with the concomitant culture and active participants in the various VTC networks. There are a number of relatively well-known individuals and agencies who are or are becoming highly competent, but they remain isolated.

²³ Meier, P 6 April 2011, *Why We Need a Disaster 2.1 Report*, Standby Task Force, viewed 5 May 2011, <http://blog.standbytaskforce.com/?p=456>.

²⁴ Conversation with Heather Leson, 6 May 2011.

In Australia, the QPS remains the sole agency with a significant role in the civil-military sector that has exhibited any real competence and experience with, and trust of, social technology. Their response to the recent Queensland floods, actively using social media such as Twitter and Facebook to both disseminate and gather intelligence about a rapidly changing disaster situation, is a textbook example of how an official agency can effectively use social media to engage a community. Indeed, use of social tools is now the first point of call for the QPS with respect to “getting the information out there”, to quote the Head of QPS Media, Kym Charlton, a self-admitted former social media skeptic. Equally, Charlton notes that QPS rely heavily on incoming messages from social media and the diverse community connected to them through social networks in order to make better sense of rapidly changing events such as the recent Queensland floods.²⁵

Anecdotal evidence suggests that the international civil-military community would benefit from the capacity to collaborate and interact beyond the bounds of meeting physically around the world several times each year. An online community, let’s call it *CivMilNet*, would enable civil-military officials from across the various sectors involved to come together and discuss issues and ideas outside the limits of physical meetings. The technology to do this already exists and is in place, operating globally and realising real benefits for a number of communities including NGOs and public servants. Outside official civil-military actors, the various VTCs already have active and functional communities that coordinate and analyse their work online.

Such a community has been proposed by several civil-military officials in Australia and elsewhere. As an example, the Canadian Association of Fire Chiefs has an active and functioning social network, PTSC-Online, used for sector collaboration.²⁶

Should it be realised, *CivMilNet* has the potential to overcome the gap between being good at collaborating while on deployments and writing up post-action reports and the implementation of lessons learned. In particular, it potentially provides an ongoing place for issues to be argued and new ideas to be mooted as a complement to the formal exercise and conference/roundtable approaches that are current practice before lessons learned are folded into doctrine.

Such a community should not be formed without actively seeking to involve the various volunteer technical communities such as CrisisCommons and CrisisMappers, OpenStreetMap, and the Standby Task Force as well as the organisations developing crisis management tools such as Ushahidi. Beyond Australia, these organisations are already interacting closely with government and NGOs and have built strong trust relationships.

Linkages with Australian Government policy agenda

Engaging with the networked crisis management communities and building capacity in the use of the tools used by these communities has strong linkages with many of the reforms currently underway in the Australian defence and public sectors. APCMCOE’s own conceptual framework notes the need to adopt flexible and collaborative approaches, tying such activities into the wider innovation reforms proposed in the Moran Review of

²⁵ Conversation with Kym Charlton, 4 April 2011.

²⁶ PTSC-Online, viewed 6 May 2011, <http://www.ptsc-online.ca/>.

the Australian public sector, *Ahead of the Game*.²⁷ So too, developments and forecasts for change in Australian defence capability in documents such as *Force 2020* and the Defence White Paper 2009 highlight the need for increased networking and collaboration capacity within Defence and between Defence and its partners.²⁸

What now?

In Australia, the US, the UK and elsewhere, including on a multinational/UN basis, there are painfully few examples of truly skilled individuals and agencies with an official civil-military remit using social and collaborative technologies in either disaster or conflict management. Nor are they actively participating in networks of expertise and collaborating with them in order to improve their capacity to act.

A number of events are already taking place around the region; events the civil-military community are not engaging with. These include *Bridging the Gap Think Tank*, in Sydney on 21 May and the global *Random Hacks of Kindness* (RHoK) in 16 locations around the world in early June.²⁹ Not actively participating in these events represents a singular missed opportunity for the civil-military sector.

Many Australian organisations across the conflict and disaster management community are now increasingly aware of the value of the use of social technologies and hyperconnectivity to improve the way they work, including during times of crisis. Several agencies, including the Attorney-General's Department have signalled they intend to investigate these approaches and a number of events to discuss experiences, research and views have been held.³⁰ Investigation, however, *is not enough*.

There is more than adequate academic and organisational research and use-in-practice evidence to show that organisations involved in official civil-military response gain measurable insight and response capability, even in the face of emergent, rapidly changing and significantly complex events when they engaged and working with technologically adept networked communities such as CrisisMappers and SBTF. In the words of GFDRR manager, Saroj Kumar Jha:

“The use of Volunteer Technology Communities (VTCs) made possible by new Web 2.0 technologies present a fundamental shift in how we can support Disaster Risk Management programs and intervene in disaster situations. We are only at the beginning of this story. The seeds planted through initiatives

²⁷ APCMCOE 2010, *Strengthening Australia's Conflict and Disaster Management Overseas*, Asia Pacific Civil-Military Centre of Excellence, Australia.

Moran, T, et al 2010, *Ahead of the Game: Blueprint for the Reform of Australian Government Administration*, Advisory Group on Reform of Australian Government Administration, Canberra.

²⁸ Department of Defence 2009, *Defending Australia in the Asia Pacific Century: Force 2030*, Defence White Paper 2009, Department of Defence, Canberra.

²⁹ *Bridging the Gap Think Tank*, <http://bridgingthegapthinktank.eventbrite.com/>, viewed 5 May 2011.

Random Hacks of Kindness 2011, *RHoK #3*, viewed 5 May 2011, <http://www.rhok.org/events/rhok-3/>.

³⁰ Lohman, T 14 February 2011, *Governments turn to technology in post-disaster review*, TechWorld, viewed 28 April 2011, http://www.techworld.com.au/article/376507/governments_turn_technology_post-disaster_review/. Eidos Institute, *Social Media in Times of Crisis*, viewed 28 April 2011, http://www.eidos.org.au/v2/index.php?option=com_content&view=article&id=359&Itemid=323.

Emergency Media and Public Affairs 2011 Conference was focused on the theme *Partnering with the Media*, viewed 28 April 2011, http://www.emergencymedia.org/site/conferences_2011.htm.

*like the Crisis Commons and Random Hacks of Kindness hold great promise for the future.*³¹

Australian civil-military agencies, and in all likelihood their equivalents elsewhere need to act to improve their capacity to engage with networked communities around crisis and disaster management.

To build skills and knowledge, as the US State Department is doing in at home and globally, so too DFAT, the Department of Defence and AusAID could actively engage with the volunteer technical communities, building relationships and expertise on both sides.

An international research effort as well as events akin to RHoK and CrisisCamp, should be sponsored by civil-military organisations such as the Asia-Pacific Civil-Military Centre of Excellence and their international peers. This activity would explicitly seek to involve the various communities - VTCs, academia, the innovation sector, CrisisCommons, The Standby Task Force and others - with an aim of fostering good working relationships and incorporating culture change, tools and practices and lessons learned with respect to the inclusion of networked communities in disaster and conflict response into civil-military doctrine by July 2012.

Building trust and strong relationships is an important first step. These actions could facilitate collaboration between the official and volunteer actors in the civil-military, disaster management and crisis response sectors, would improve knowledge amongst all involved and would certainly improve the capacity to respond effectively and efficiently to events in the future.

³¹ Global Facility for Disaster Reduction and Recovery March 2011, *Volunteer Technology Communities: Open Development*, GFDRR Labs, Washington, p1.