Haiti Earthquake: Breaking New Ground in the Humanitarian Information Landscape

Summary:

New information and communication technologies, new information providers, and new international communities of interest emerged during the Haiti earthquake response that will forever change how humanitarian information is collected, shared, and managed. Humanitarian responders used social networking media, mobile phone text messaging, open source software applications, and commercial satellite imagery more than ever before. Outside of the established international humanitarian community, volunteers and participatory reporters from the affected population became new sources of data and information. Humanitarian organizations, host governments, and the donor community will all need to adapt to this new information environment. In addition to adapting to these new developments, there remain information management lessons learned and best practices from past experiences that need to be integrated into the organizational structures, coordination mechanisms, and decision making processes of the various humanitarian response communities.

The January 12 Haiti earthquake ushered in a new humanitarian information environment: one with unprecedented availability of raw data in all forms, the growing usage of new information communication technology (ICT), and the emergence of three loosely-connected humanitarian communities of interest. These three communities of interest were centered around: the US Government; the United Nations and international community; and a new group (ICT Volunteers) comprised of virtually-connected academics, humanitarians, corporate foundations, and ICT professionals. All three communities collected, shared, and acted upon enormous amounts of digital information made available on a variety of web portals, platforms, and new social networking media, such as Short Message Service (SMS) feeds, Twitter, Facebook, etc.

Each community has slightly different missions, needs, preferences, cultures, personal networks, etc. Therefore there is never going to be one single, universally accepted "Global Omniscient Database" (GOD) that contains all knowledge, serves all functions, and meets the needs of all users. Some users need information for operational purposes: planning, coordinating, and implementing a humanitarian response or program. Other users want information to provide them with synthesized situational awareness or strategic analysis. Because of the variety of users and applications, critical data and information should be structured in order to be shared across communities, networks, and platforms. These broadly available datasets can then be more systematically evaluated, synthesized, and analyzed by multiple users across different communities for the purposes of coordination, gap analysis, prioritization, strategic decision-making, and the creation of a more common situational awareness.

US Government
Organizations: US Agency for International Development (USAID), US Department of Defense/US Southern Command (US SOUTHOM), US Department of State, Department of Homeland Security/Federal Emergency Management Agency (DHS/FEMA), US Coast Guard (USCG), Department of Health and Human Services (HHS), United States Geological Survey (USGS) and others.
Portals/Platforms: All Partner Access Network (APAN), Intellipedia, Diplopedia, Civil Military Fusion Center, etc.

The Haiti earthquake marked the largest US "Whole-of-Government" humanitarian response to a natural disaster. President Obama designated USAID as the lead agency for the USG humanitarian response and as of June 25, 2010, USAID had committed over $654 million in supplies, grants, and support. At the height of the disaster response, US SOUTHCOM dedicated approximately 20,000 personnel to Operation Unified Response Haiti, and deployed 20 ships and 130 aircraft for humanitarian transport. US Department of State obligated $11.2 million to assist refugees and host families and to support repatriation and resettlement programs for displaced persons. Other USG agencies, such as FEMA, USCG, HHS, and USGS also provided technical assistance to support the USG response.[i]

The first several hours after a major natural disaster such as the Haiti earthquake constitute a period of "incomplete situational awareness". During this time, the situation is changing rapidly, communications are disrupted, access is limited, and most on-the-ground assessments have not yet been conducted. Because of its proximity to Haiti, the US was quickly able to dispatch a USAID Disaster Assistance Response Team (DART) and US SOUTHCOM personnel set up US Joint Task Force Haiti to manage and coordinate logistics and to support other USG humanitarian response activities. Coordination centers were established at US SOUTHCOM in Miami and at USAID and State Department in Washington to gather information that was useful for strategic and programmatic decision making. One lesson learned/best practice that was followed was the assigning of DoD, State, and USAID personnel in each other's coordination centers to serve as liaisons and advisors in an effort to develop and implement a "Whole of Government" approach to the response. Representatives from UN agencies and NGOs also served as liaisons in some of these coordination centers, as well as with some USG teams in Haiti. This helped to establish personal relationships, facilitate inter-organizational information sharing, and provide greater understanding of cross-community cultures.

Another key best practice was DoD/US SOUTHCOM decision to promote the use of unclassified information whenever possible and to use more public domain platforms for sharing information. Much of DoD/US SOUTHCOM's humanitarian-relevant data and information, which in previous instances were designated as classified simply because of the systems on which they resided, were in this case kept unclassified for the Haiti earthquake response, allowing them to be shared widely. US SOUTHCOM quickly launched the All Partners Access Network (APAN), a platform US Pacific Command developed originally, to share unclassified information and enhance collaboration and operational coordination. US SOUTHCOM made password registration available to anyone upon request, so within the first three weeks, APAN had over 1,800 registered users and became the platform for US SOUTHCOM to share information with the outside world. [ii] Imagery products, maps, photos, assessments, situation reports,

common operational pictures, requests for information, etc. were made available on APAN and marked an improvement in civilian-military collaboration and information sharing.

United Nations/International Community
Organizations: UN Office for the Coordination of Humanitarian Affairs (OCHA), World Food Program (WFP), Food and Agriculture Organization (FAO), UN Development Program (UNDP), UNICEF, Pan American Health organization (PAHO), Red Cross, international NGOs, World Bank, European Commission (EC) and others.
Portals/Platforms: Global Disaster Alert Coordination System (GDACS), Virtual On-Site Operations Coordination Center (VOSOCC), ReliefWeb, OneResponse, GoogleGroups, Reuters AlertNet, etc.

The United Nations humanitarian community first began tracking the post-earthquake situation using three UN OCHA-managed webportals/platforms: GDACS, VOSOCC, and ReliefWeb. Initial field reporting was disrupted in part because of the earthquake's significant toll on the UN's human presence in Haiti. The UN Stabilization Mission in Haiti, which consisted of approximately 9,000 peacekeeping security forces deployed throughout Haiti, was extremely devastated after its Port-au-Prince headquarters building collapsed and 96 personnel were killed. UN Disaster Assessment Coordination (UNDAC) teams and international search and rescue teams were dispatched to Port-au-Prince, using VOSOCC to mobilize and coordinate deployment. The UNDAC team included information management and GIS personnel to provide situation reporting and maps for the international humanitarian response community.

With a disaster of this magnitude, the United Nations activated its UN humanitarian Cluster System, first tested in the 2005 Pakistan earthquake, to coordinate international relief activities geared around such sectors as food, health, water and sanitation, logistics, shelter, camp management, etc. In the case of Haiti, unfortunately, the UN Cluster coordination system had not been adequately established for fast resourcing and implementation. In an internal memo published on Foreign Policy On-Line, the UN Emergency Relief Coordinator and head of OCHA, John Holmes, scolded the UN humanitarian agencies, stating that he was

> *disappointed to find that despite my calls for the Global Cluster Lead Agencies to strengthen their cluster coordination capacity on the ground, very little progress has been made in this critical area.… only a few clusters have fully dedicated cluster coordinators, information management focal points and technical support capacity, all of which are basic requirements for the efficient management of a large scale emergency operation.* [iii]

A new OCHA portal, OneResponse, designed for the UN Cluster system, was launched and used to store and share data, information, and analysis related to each of the cluster activities. A few clusters also set up GoogleGroups to facilitate cluster information sharing, collaboration, and coordination. A number of information management toolkits, such as the Joint Operations Tasking Center (JOTC) logistics form, Who is Doing What Where (3W) database, the Multi-Cluster Rapid Assessment methodology, the Displacement Tracking Matrix, Post Disaster Needs Assessment and Recovery Framework, the Cluster meeting calendar and directories, etc. were established to facilitate humanitarian coordination and information management. The creation of new information systems and tools, however, does not

necessarily ensure effective inter-organizational coordination and decision making.   In order to be effective, these systems and knowledge management best practices must become integrated into the work and decision making processes of the international humanitarian response professional community, including donors.

ICT Volunteers
Organizations: Google, InSTEDD, Fortius One/GeoCommons, OpenStreet Map, Tufts/Harvard Universities, Frontline SMS, ICT4Peace, Sahana, Thompson Reuters Foundation, and others
Portals/Platforms: SMS 4636, Ushahidi, , STAR-TIDES, Haiti Voices, ICT4Peace Inventorization Wiki, CrisisCamp Haiti, CrisisCommons Wiki, crisescomm.ning.com, blogs, etc.

Within hours after the report of the Haiti earthquake, a new community of virtually connected volunteers affiliated with ICT consulting companies, private corporations, open source software proponents, academic/research institutions, NGOs, and even the Haitian diaspora community began applying new ICT applications to the earthquake response. "Web 2.0" social network media were used as a new means for crowdsourced data collection, information sharing, and collaboration. Within days, individuals from this community, with support from the US State Department, worked with ICT companies to establish a SMS 4636 code for the free transmission of text message information to and from Haiti. Google adapted its suite of tools for applications to support the Haiti earthquake response and helped develop a Person Finder application to help find and connect persons in Haiti who could not be contacted.

A nascent, virtual CrisisMappers network began utilizing an open source interactive mapping platform, known as Ushahidi (Swahili for "witness), to gather, extract, and plot geo-referenced data on a public domain website. Over the course of the disaster, Ushahidi and volunteer diaspora translators received over 80,000 text messages; approximately 3,000 of these were used in some way during response activities. Other geo-referenced data were gleaned from Twitter, blogs, the news media, and humanitarian situation reports to provide fast turnaround situational awareness products, including imagery-based maps. The US Coast Guard, the 22nd US Marine Expeditionary Unit, and other first responders report using these social media platforms to carry out their emergency assistance operations. Individuals from the USG, the UN, and some NGOs were also connected to this network.

This new community needs to be recognized as a new player in the humanitarian information environment, and in order to be most effective also needs to work with the established international humanitarian actors and follow their humanitarian codes of conduct and information management best practices and principles. One potential problem is that SMS crowdsourcing[iv] could become "geeksourcing": a tsunami of unverified reporting and requests for assistance from individuals with smartphones. Requests and pleas for assistance might be exaggerated or include misinformation, and could overwhelm the system and divert responses from identified emergency needs of affected populations that have been objectively assessed by national and international response teams. This nascent ICT community is also dependent on volunteerism and pro-bono resourcing, which does not ensure its sustainability or its integration with the host country and international humanitarian system,

particularly as response activities transition into the recovery phase. Members of this community recognize these issues and are working to address them.

Lessons Learned: The Value of Geospatial Data from Relief to Recovery

Prior to the earthquake, the Government of Haiti's National Center for Geospatial Information (CNIGS) had some of the most comprehensive holdings of geospatial data and imagery of any country in the region. The US Government and European Union provided major support and funding to CNIGS, in a commitment to the advancement of geospatial information to be used for sustainable development and natural hazard mitigation. Unfortunately, the earthquake destroyed the CNIGS building in Port-au-Prince, killing five staff members and its director, and making its data resources unavailable for immediate response, though most of the holdings were later recovered or restored.

Fortunately, a combination of opportunities made geospatial data and imagery much more available than in any previous natural disaster. The two largest US commercial satellite vendors, GeoEye and Digital Globe, provided vast amounts of pre- and post-earthquake high resolution satellite imagery at no cost, and Google made it available on platforms such as GoogleEarth and GoogleMaps. The US Air Force Global Hawk and the World Bank/Image Cat provided even higher resolution aerial photographic imagery for geospatial analysis that could be used for humanitarian applications. Specialized organizations such as UNOSAT, iMMAP, MapAction, ITHACA, etc provided customized GIS and satellite imagery analysis for the humanitarian community. The "CrisisMappers" community also provided large amounts of crowdsourced and ground-truthed geospatial data available on open source formats and platforms.

The vast amount of geospatial assessment data generated during the relief phase, combined with the pre-disaster legacy data, needs to be harnessed and used for planning, coordination, monitoring and evaluation during the reconstruction and recovery phases. These geospatial data can also help support good governance and the rebuilding of national capacities. Lessons learned from past experiences indicate that high level commitment and coordination are necessary both at the headquarters level and in the field to implement a geographic information management strategy that supports the transition from relief to recovery.

Other information management lessons learned from Haiti

There is one lesson learned that is constantly repeated: we don't learn from previous lessons learned nor do we institutionalize best practices. Here are some information lessons learned/best practices that bear reiterating:

Store and back-up essential baseline geospatial data so that it can be used immediately once a disaster occurs. Likewise, store and maintain data collected during the immediate response/relief phase of a disaster, so that it can be used and leveraged for planning and analysis during the subsequent reconstruction, recovery, and development phases.

Introduce and provide training in new ICT tools and information systems in advance of emergencies, so that they can be utilized fully and effectively when a disaster occurs. Tools and technologies that are inter-operable, non-proprietary, no/low-cost, self-contained, easy-to-access, and easy-to-use are the most effective.

Make critical data and information sharable with the host government, civil society, and affected populations (in local language) in order to strengthen host country capacities, leverage local expertise, gain their valuable input, involve them in coordination, and empower them for future transitions.

The international humanitarian community should engage with the private sector and academic communities in order to keep up with the latest technology innovations and new management practices. These two communities are increasingly donating resources, in the form of funds, equipment, and volunteers to humanitarian response efforts.

With so much data and information coming in from different sources, it is critical that the data and information include the essential meta-data (source, date-stamp, geo-reference) and adhere to the Principles of Humanitarian Information Management, i.e. accessibility, accountability, impartiality, inclusiveness, interoperability, relevance, sensitivity, sustainability, timeliness, and verifiability.[v]

Just making enormous amounts of data and information available and introducing new technologies are not enough to ensure efficient coordination and effective decision making. Strong management, proper resourcing, advance training, and recognized standards and policies are necessary to take full advantage of collected data and information for strategic analysis and operational applications.

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[i] USAID/DCHA Haiti Earthquake Fact Sheet #60, US Agency for International Development, Bureau of Democracy, Conflict and Humanitarian Assistance. Washington DC, June 25, 2010

[ii] APAN HA/DR Community Usage Quick Look Report. Jan 10 -28 USSOUTHCOM PowerPoint

[iii] Top U.N. aid official critiques Haiti aid efforts in confidential email, Foreign Policy On-Line, Colum Lynch , February 17, 2010 - http://turtlebay.foreignpolicy.com/posts/2010/02/17/top_un_aid_official_critiques_haiti_aid_efforts_in_confidential_email

[iv] Definition of Crowdsourcing: Obtaining information from the general public about current events, products and locations. For example, if a natural disaster strikes an area, locals can capture and upload images before a professional news crew arrives. PC Magazine Encyclopedia.

[v] Global Symposium +5: Information for Humanitarian Action, 22-26 October 2007, UN Office for the Coordination of Humanitarian Affairs, Geneva, Switzerland. http://www.reliefweb.int/symposium/