9

Crisis-Mapping in Areas of Limited Statehood

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Introduction

Crises often challenge or limit statehood and the delivery of government services. The concept of "limited statehood" thus allows for a more realistic description of the territorial and temporal variations of governance and service delivery. Total statehood, in any case, is mostly imagined—a cognitive frame or prestructured worldview. In a sense, all states are "spatially challenged" in that the projection of their governance is hardly enforceable beyond a certain geographic area and period of time. But "limited statehood" does not imply the absence of governance or services. Rather, these may simply take on alternate forms, involving procedures that are non-institutional (see Chapter 1). Therein lies the tension vis-à-vis crises, since "the utopian, immanent, and continually frustrated goal of the modern state is to reduce the chaotic, disorderly, constantly changing social reality beneath it to something more closely resembling the administrative grid of its observations" (Scott 1998, 83). Crises, by definition, publicly disrupt these orderly administrative constructs. They are brutal audits of governance structures, and the consequences can be lethal for state continuity. Recall the serious disaster response failures that occurred following the devastating cyclone of 1970 in East Pakistan. To this day, Cyclone Bhola still remains the most deadly cyclone on record, killing some 500,000 people. The lack of timely and coordinated government response was one of the triggers for the war of independence that resulted in the creation of Bangladesh (Kelman 2007, 6). While crises can challenge statehood, they also lead to collective, self-help behavior among disaster-affected communities—particularly in areas of limited statehood. Recently, this collective action—facilitated by new information and communication technologies—has swelled and resulted in the production of live crisis maps that identify the disaggregated, raw impact of a given crisis along with resulting needs for services typically provided by the government (see Chapter 7). These crisis maps are sub-national and are often

crowdsourced in real time. They empirically reveal the limited contours of governance and reframe how power is both perceived and projected (see Chapter 8). Indeed, while these live maps outline the hollows of governance during times of upheaval, they also depict the full agency and public expression of citizens who self-organize online and offline to fill these troughs with alternative, parallel forms of services and thus governance. This self-organization and public expression also generate social capital between citizen volunteers—weak and strong ties that nurture social capital and facilitate future collective action both on and offline.

The purpose of this chapter is to analyze how the rise of citizen-generated crisis maps replaces governance in areas of limited statehood and to distill the conditions for their success. Unlike other chapters in this book, the analysis below focuses on a variable that has been completely ignored in the literature: *digital social capital*. The chapter is thus structured as follows. The first section provides a brief introduction to crisis mapping and frames this overview using James Scott's discourse from *Seeing Like a State* (1998). The next section briefly highlights examples of crisis maps in action—specifically those responding to natural disasters, political crises, and contested elections. The third section provides a broad comparative analysis of these case studies, while the fourth section draws on the findings of this analysis to produce a list of ingredients that are likely to render crowdsourced crisis-mapping more successful in areas of limited statehood. These ingredients turn out to be factors that nurture and thrive on digital social capital such as trust, social inclusion, and collective action. These drivers need to be studied and monitored as conditions for successful crisis maps *and* as measures of successful outcomes of online digital collaboration. In sum, digital crisis maps both reflect and change social capital.

Theorizing Crisis-Mapping

Crisis maps are not new. In 1668, Louis XIV of France commissioned three-dimensional scale models of eastern border towns so that his generals in Paris and Versailles could plan realistic maneuvers. As late as World War II, the French government guarded them as military secrets with the highest security classification. Crisis maps of the opening battle of the Sino-French War in the 1880s also exist, one drawn by the Chinese and one by the French. During World War I, the United Kingdom's Daily Mail produced war maps that projected and revealed the British government's select view of the war's global scope; the maps simply depicted the military and economic capabilities of each warring nation. This state-centric, top-down view and administration of the World War was published as the authoritative perspective of the crisis. To be sure, maps have traditionally represented "not just the perspective of the cartographer herself, but of much

larger institutions—of corporations, organizations and governments" (Anderson 2013). The scale was thus fixed at one and only one scale, that of the state.

What about the "view from below"? What about the local view from the ground and the very real human consequences of war, such as food shortages, mass rape, and citizen casualties, and so on? Crowdsourced, citizen-generated maps did not exist during World War I or II, or during Cyclone Bhola. Like the books of old, the maps of yesteryear were produced and controlled by the few, typically the elite and victors. Today, however, mapmaking has been radically democratized, leading to the rise of a "mapping reflex" whereby live maps that depict a view from below are launched every day by ordinary individuals around the world. But this new type of geography is not only radically different from traditional approaches because it is user-generated and participatory; the fact that today's dynamic maps can also be updated and shared in near real-time opens up an entire new world of possibilities to facilitate independent agency and local responses—especially during times of crisis. To be sure, having a real-time map is almost as good as having your own low-flying helicopter. These live maps provide immediate situational awareness, a third dimension and thus a plurality of additional independent perspectives—a flock's-eye view—on local events unfolding in time and space.

One might refer to this type of counter-mapping as guerrilla geography—a clear assault and threat to the state-centric monopoly on perspective and thus perception of governance. Perhaps the most well-known technology for guerrilla geography and crisis-mapping is the free and open source Ushahidi platform, which has already been introduced and described earlier in this volume (see Chapter 7). The Ushahidi platform is best described as a multi-media inbox linked to a live map. The first Ushahidi map was launched in response to the 2007/2008 electoral violence in Kenya, hence the Swahili name. The platform was used to map local news reports on the violence and to crowdsource the reporting of human rights violations using e-mail and SMS. In this way, the "crowd" was able to document human rights violations across the country—evidence that would otherwise have gone completely undocumented. When used for crisis-mapping, Ushahidi is thus an example of information and communication technology that can disrupt the state's penchant for perceived uniformity. The technology can be used to contest state-centric cognitive frames and lay bare the realities of limited statehood across space and time—especially during a crisis.

Why is this important vis-à-vis governance? Because live, public maps can help synchronize shared awareness, an important catalyzing factor of social movements, according to Jürgen Habermas (1962). Recall Habermas's treatise that "those who take on the tools of open expression become a public, and the presence of a synchronized public increasingly constrains undemocratic rulers while expanding the right of that public" (Shirky 2011). Just as knowledge is power, maps too are power. "This transformative power resides not in the map," however, "but rather in the power possessed by those who deploy the perspective of that particular map" (Scott 1998, 87). Remember that "in many countries,

place-names, let alone the alignment of boundaries, remain a powerful symbol of independence and national pride, and not merely indicators of location" (Valdéz 2013). To be sure, "maps are so closely associated with power that dictatorships regard information on geography as a state secret" (Osnos 2013). James Scott (2012) refers to these particular symbols of statehood as "landscapes of control and appropriation" and warns against "equating visual order with working order and visual complexity with disorder." As he explains: "A great deal of the symbolic work of official power is precisely to obscure the confusion, disorder, spontaneity, error, and improvisation of political power as it is in fact exercised, beneath a billiard-ball-smooth surface of order, deliberation, rationality, and control" (Scott 2012). But while history used to be written by the victors, today some argue that crowdsourced crisis maps are becoming the new first drafts of history; landscapes of resistance and self-determination. These maps depict nonstate perspectives from different scales and thus project the perception—and perhaps actuality—of non-state power. In sum, "we must keep in mind not only the capacity of state simplifications to transform the world but also the capacity of the society to modify, subvert, block, and even overturn the categories imposed upon it" (Scott 1998, 49).

The Ushahidi platform may enable a form of live-mapped "sousveillance," which refers to a bottom-up awareness created by recording of an activity using portable personal technologies. In many respects, however, the use of Ushahidi goes beyond sousveillance in that it generates the possibility of "dataveillance" and a possible reversal of Jeremy Bentham's Panopticon—a prison design that allows the prison authorities to observe all that happens around them without themselves being observed. "With postmodernity, the panopticon has been informationalized; what once was organized around hierarchical observation is now organized through decoding and recoding of information" (Lyon 2006, 153). In *Seeing Like a State*, Scott argues eloquently that this process of decoding and recoding was for centuries the sole privilege of the state: "Every act of measurement was an act marked by the play of powerful relations" (Scott 1998, 27). In contrast, the Ushahidi platform provides a participatory digital canvas for the public decoding, recoding of information, or measurement, and the synchronization of said measurement, which can facilitate alternative forms of governance. In other words, the platform serves to democratize dataveillance by crowdsourcing what was once the exclusive realm of the "security-informational complex," thus democratizing the act of measurement and hence governance.

In "Domination and the Arts of Resistance: Hidden Transcripts," published in 1990, Scott distinguishes between public and hidden transcripts. The former describes the open, public interactions that take place between dominators and oppressed, while hidden transcripts relate to the critique of power that "goes on offstage" and that the power elites cannot decode. This hidden transcript is comprised of the second step, social conversations, that Katz and Lazarsfeld (1955) argue ultimately change political behavior. Scott writes that when the oppressed

classes publicize this "hidden transcript," they become conscious of its common status. Borrowing from Habermas, the oppressed thereby become a public and more importantly a synchronized public. In many ways, the Ushahidi platform is a vehicle by which the hidden transcript is collectively published and used to create shared awareness—thereby threatening to alter the balance of power between oppressors and oppressed. Crisis maps thus allow citizens to break free from the cognitive frames and prestructured worldview imposed by the state. There is also a clear link to governance since the reframing of this worldview also leads to the reframing of governance services along with the sources and provisions thereof.

In the fields of geography and cartography, some refer to this new wave of democratized mapmaking as "neo-geography." But this new type of geography is not only radically new for the reasons already stated. Crowdsourcing a live crisis map also catalyzes conversations between citizens, raises questions about geographic patterns or new incidents, and leads to more questions regarding the status quo, especially in areas of limited statehood that are repressive and struck by a crisis. To be sure, mass media alone do not change people's minds. Recall that political change is a two-step process, with the second—social step—being where political opinions are formed (Katz and Lazarsfeld 1955). In other words, "This is the step in which the Internet in general, and social media in particular, can make a difference" (Shirky 2011). Collaboration on live crisis-mapping efforts catalyzes this second, social step of conversations. In doing so, this collaboration creates weak and strong ties, both of which are important for collective action in social movements.

In sum, maps have been central to governance and state-formation for centuries: "They were designed, above all, to facilitate the central administration of production and the control of public life" (Scott 1998, 348). At minimum, they give the misleading impression of total statehood—an impression easily shattered during times of crisis: "If we imagine a state that has no reliable means of enumerating and locating its population, gauging its wealth, and mapping its land, resources, and settlements, we are imagining a state whose interventions in that society are necessarily crude" (Scott 1998, 77). Today, civil society groups can create shared awareness using crisis maps, which can facilitate more targeted and independent interventions from below. These crisis maps reveal that the imagined landscape of total statehood is in fact a very limited island of governance indeed. In effect, these maps trace the narrow contours of limited statehood across time and space. The use of new ICTs like the Ushahidi platform can thus facilitate and render more visible alternative procedures of governance and the agency behind them.

Crisis-Mapping in Action

The purpose of this section is to compare the above theoretical discourse to four real-world case studies from Haiti, the United States, Egypt, and Libya. These

short case studies are necessarily brief, as they were deliberately selected to highlight specific insights that are analyzed in more detail in the following section.

Haiti. Two years after the Ushahidi platform was first launched and used to map Kenya's election violence, a live crisis map using Ushahidi was set up following the devastating Haiti earthquake that struck Port-au-Prince in January 2010 and killed over 200,000. According Craig Fugate, the Administrator of the US Federal Emergency Management Agency (FEMA), this crisis map provided the most comprehensive and up- to-date information available on Haiti. Both the US Marine Corps and Coast Guard used the map to save hundreds of lives in Port-au-Prince and neighboring towns. As one of poorest countries on the planet, Haiti had long been characterized as an area of limited statehood prior to the earthquake. This latest disaster further incapacitated the state, killing many government officials and civil servants.

So who created the invaluable crisis map that saved hundreds while at the same time revealing the serious limitations of Haitian state governance (and the humanitarian community)? Neither the Haitian government, nor FEMA, nor the United Nations had the means or skills to create this live map. Instead, it turns out that the crisis map was launched by student volunteers from The Fletcher School at Tufts University in Boston, some 1,500 miles away from Haiti. They self-organized into groups and monitored both social and traditional media to extract and map any relevant information related to the earthquake. Within days, a dedicated SMS short code was set up that allowed anyone in Haiti to text in their most urgent needs and location. These text messages were subsequently translated and geo-located by members of the Haitian Diaspora. None of the volunteers engaged in this initiative had done anything quite like this before—nor had anyone else for that matter. But their efforts resulted in greater situational awareness for a number of first responders.

Washington, DC. In early February 2010, just weeks after the earthquake struck Port-au-Prince, a major snowstorm paralyzed the US capital. Popularly called "Snowmaggedon," the snowstorm knocked out electricity in 20,000 homes and businesses, blanketing roads, railroads, and runways with snow, thus forcing the closure of all public transportation. A live crisis map using the Ushahidi platform was launched by *The Washington Post* and PICnet, a web-development consulting firm. What is notable about this crisis map is that it sought to crowdsource reports of needs from the disaster affected population as well as solutions. In other words, the project proposed to use the crisis map as a self-help map—a platform for self-organization and crowdsourced response. This Washington, DC, crisis map and the project in Haiti subsequently inspired Russian activists in Moscow to launch a self-help map of their own when massive fires ravaged Russia six months later (see Chapter 7).

While the United States is obviously not considered an area of limited statehood in the same way that Haiti is, the disaster resulting from Hurricane Katrina in 2005 clearly demonstrated the limited capacity of the federal government

vis-à-vis governance services before and after a major disaster. The same was true of the Category 3 storm Snowmaggedon that paralyzed the city of Washington, DC. The resulting crisis map drove home an important, albeit obvious, point: government disaster responders cannot be everywhere at the same time, but the crowd is always present. And crises always catalyze collective behavior among crowds. The difference today is that ICTs make it easier to crowdsource both shared situational awareness and response regardless of whether the state is actively responding to a crisis or not.

Interestingly, however, the Washington, DC, crisis map was largely a failure. The total number of reports posted to the live map was very low. The number of reports offering help could be counted on just one hand, for example. This is particularly surprising given the high visibility of *The Washington Post* and the fact that residents of Washington, DC, have widespread access to smartphones and the Internet. Many of the right ingredients for success were present and yet the crisis map did not gain any traction.

Egypt. Hosni Mubarak barred international election observers from monitoring the country's parliamentary elections in November and December 2010. An Egyptian marketing company thus launched a project called U-Shahid using the Ushahidi platform. The purpose of this initiative was to crowdsource citizen-based election-monitoring efforts during the parliamentary elections. U-Shahid was launched well ahead of the elections with a dedicated trainer organizing a series of workshop in five key Egyptian cities. Customized workflows to collect, process, verify and map reports of election irregularities were drafted. The team also developed an "organigram" for the operation and set up contingency plans in the event that their project would be shut down by state security forces.

The U-Shahid project mapped some 2,700 reports during the two rounds of parliamentary elections, which included 211 supporting pictures and 323 videos. The team was also able to verify more than 90 percent of the content that ended up on the map by using basic journalistic techniques, such as triangulation and follow-up. In total, the web-based map received close to 60,000 hits, the vast majority of which came from within Egypt. (Interestingly, the next highest number originated from Saudi Arabia.) The group proactively disseminated this information, using both new and traditional media channels. Their efforts were featured on Egyptian television, on BBC Arabic programming, and in dozens of articles in ten different languages. The U-Shahid crisis map was considered by many as a success—not least because of the difficult political challenges of operating in a repressive state.

Libya. The political crisis in Libya began to escalate just weeks after Mubarak was deposed in Egypt. On March 1, 2011, a live crowdsourced, social media crisis map of Libya was launched at the request of the UN Office for the Coordination of Humanitarian Affairs (UN OCHA). OCHA did not have any Information Management Officers in Libya during the early onset of the humanitarian crisis. However, they realized that a rich amount of multi-media information had

been shared on social media during the uprisings that had occurred in neighboring Tunisia and Egypt. The crisis map was therefore used to map social media content (and later mainstream media content as well) that was most relevant for the purposes of decision-making for humanitarian response. Information from the live crisis map was integrated within official UN information products used to support decision-making.

As in the case of the Haiti map, the Libya crisis map was not launched by any established organization or professional humanitarian network. Instead, OCHA activated the Standby Volunteer Task Force (SBTF), a global network of some 900 volunteers based in over 80 countries around the world. The purpose of the SBTF is to provide humanitarian, human rights, and development organizations with a dedicated volunteer base for live crisis-mapping. The SBTF was launched in October 2010 and has since been activated over twenty times by various organizations. Interestingly, the impetus for the SBTF was the Haiti crisis map. After the earthquake struck, Port-au-Prince, the volunteer effort that sprung to life was reactive and thus unprepared. Volunteers from the Haiti operation realized the life-saving power of creating crisis maps and thus decided to create a team of standby volunteers who were already trained in crisis-mapping to support future responses to humanitarian crises.

Comparative Analysis in Search of Success

Determining what constitutes success in crisis-mapping efforts is an ongoing challenge, not least in areas of limited statehood. Whether or not the efforts described above are in fact successful ultimately depends on what the goals of these maps were in the first place. These goals, however, are rarely articulated but often implied. One could take a "state-centric" approach and simply devise quantifiable, macro-level metrics such as the number of reports submitted per crisis map, the number of hits received on the website hosting the map, the extent of media coverage, and so on. Going by these metrics, one would judge the Haiti crisis map a success and the Washington, DC, crisis map a failure. In fact, most Ushahidi maps would be deemed a complete failure if these metrics were used to assess success. A recent empirical study of Ushahidi maps revealed that the vast majority of maps (93 percent) had fewer than ten reports (Bailard, Baker, Hindman, Livingston, and Meier 2012).

But is ten an appropriate threshold for this metric? Or should the number be of reports be greater than 100 for a map to be considered successful? These thresholds may have to depend on the local context or otherwise run the risk of being purely arbitrary and largely meaningless. Another approach might be to try to measure the impact of these crisis maps on the "external" social, political, and economic environment. This too is a challenge, since few independent and comprehensive impact evaluations have ever been carried out on these maps

(primarily due to cost). This "environmental" approach, while important, is thus mainly limited to anecdotal evidence.

There is a third lens, however, through which to assess the impact of crisis maps and understand the conditions of their success. This might be called the "people-centered" lens. The focus here is more "internal" and argues that the added value and impact of crisis maps lies in the social capital that results from collaborating on these maps over the long term rather than in the immediate moment. The field of sociology defines the term "social capital" as the expected collective benefits from the preferential treatment and cooperation between individuals and groups, which can result in increased productivity. A people-centered approach thus places more emphasis on the development of both weak and strong ties over time than on the deliverable—the crisis map. There is increasing evidence that social capital is a potent force for development and humanitarian response. A report by the International Federation of the Red Cross (Levinger and Bloom 2011) found that National Societies that fostered strong and weak links across networks performed better irrespective of the political and economic realities in a given country than those that did not engage in purposeful networking. In other words, the former were more organizationally effective as a result of building social capital. This lens is often missing from the discourse on the role of ICTs in areas of limited statehood. Social capital is less tangible than a map and measuring this type of digital human capital is more challenging.

The notion of crisis mapping as a *process* that produces and accumulates social capital relates well to the concept of *metis* described by Scott in *Seeing Like a State*. Coming from Greek mythology, *metis* refers to wisdom and cunning—practical, local knowledge. *Metis* is based on experience and practice: "The skills of metis may well involve rules of thumb, but such rules are largely acquired through practice (often in formal apprenticeship) and a developed feel or knack for strategy. [...] In a sense, metis lies in that large space between the real genius, to which no formula can apply, and the realm of codified knowledge, which can be learned by rote" (Scott 1998, 315–16). Scott relates this directly to crisis situations: "Adapting quickly and well to unpredictable events—both natural events, such as the weather, and human events, such as the enemy's move—and making the best out of limited resources are the kinds of skills that are hard to teach as cut-and-dried disciplines" (315). As such, "the practice and experience reflected in metis is almost always local" (317).

The "local" in the context of digital social capital is grounded in the messaging and social-networking platforms that are used to coordinate crisis-mapping efforts. These include Skype, Ning, Google Docs, Google Groups, and e-mail. These technologies provide a "locality" for deliberation and coordination, for the sharing of "local" knowledge, practice, and experience. The vast majority of these efforts are carried out via text rather than voice calls. This is a matter of "practical efficacy," which as Scott notes, "is the key test of metis knowledge" (331). So while Skype is the most critical of the technologies used to self-organize and coordinate,

it is the instant-messaging function that is used almost exclusively. Together with the Google Docs, which are used to share evolving knowledge, Skype lends a sense of "location" to the efforts; a locality where *metis* can be shared and reshaped according to the different needs.

This is how volunteers from the SBTF collaborate across multiple time zones and from dozens of different countries around the world—collaboration that catalyzes weak and strong ties, which in turn builds social capital and facilitates collective action. To be sure, recent studies have shown that "such interactions are not necessarily of inferior quality compared to simultaneous, face-to-face interactions" (Tibbitt 2011). What's more, "In addition to the preservation and possible improvement of existing ties, interaction through social media can foster the creation of new relations" (Dufty 2012, 43). In sum, social interactions facilitated via social media and networking platforms build trust, which improves collaboration and generates social capital.

Let's revisit the crisis map case studies highlighted above in the context of a people-centered approach that emphasizes the build-up of social capital and the accumulation of *metis*. In many ways, the Haiti crisis map launched the field of crisis-mapping. How did the map materialize when viewed through a people-centered lens? Volunteers from The Fletcher School at Tufts University created the map just hours after the tragic earthquake hit Haiti. Why? The initial impetus was due to the fact that several Fletcher students were in Port-au-Prince and missing at the time. So this pre-existing social network—latent social capital—was critical to the success of the Haiti crisis map. To be sure, the presence of an existing social network and community facilitated the collective action and collaboration that ensued. Recall that the hundreds of volunteers that joined the efforts were from Tufts University and also from the Haitian Diaspora (another pre-existing social network). These international and online multi-network efforts resulted in strong and long-term ties with a *local* Haitian software company called Solutions.ht, which subsequently built a local crisis mapping platform called *Noula* thanks to the direct support and engagement of volunteers from Tufts University.

Taking a "people-centered" lens also means evaluating the build-up of social capital over the long term. Doing so, vis-à-vis the Haiti map, reveals that it was volunteers from the Haiti efforts that ultimately launched the SBTF, which has since provided multiple humanitarian organizations with critical support in several key crises. Moreover, the initial members of the SBTF were not only those volunteers who had responded to Haiti, but also those who were engaged in the aftermath of the Chile earthquake and the Pakistan floods, and eventually the volunteers who spearheaded the Russia Help Map following the massive wildfires there (see Chapter 7). Indeed, it was the Haiti map that inspired Russian activists to launch their own crisis map in response to the fires, modeling their approach based on *The Washington Post*'s crisis map of Washington, DC. The following year, Japanese volunteers in Tokyo launched a live crisis map following the devastating

earthquake and tsunami—again after having been inspired by the efforts in Haiti. They also reached out to the SBTF and Japanese students at The Fletcher School who had contributed to the Haiti efforts for support.

Note however that the Washington, DC, crisis map is largely considered a failure if "state-centric" metrics, such as number of reports, is used. Indeed, the map got very little traction even though it was featured and hosted on *The Washington Post*'s website. The project was launched by a major organization, so it was perhaps more top-down than the other case studies analyzed earlier. Does this imply a lack of pre-existing social capital, which in turn explains the relative failure of the crisis map? Either way, the map served to inspire others—like Russia's wildfires—that were considered highly successful.

One reason why the U-Shahid project in Egypt was so well prepared and designed was because one of the co-founders of the SBTF was U-Shahidi's principle trainer. She shared the lessons, or *metis*, she learned at U-Shahid with the SBTF, and her contacts in the country and region became important when UN OCHA requested a live crisis map of Libya only months later. The team at U-Shahid has subsequently launched a live map during the Egyptian revolution and several other maps since, learning and improving their approach with each iteration. Their latest map, which built on this *metis*, focused on Egypt's presidential elections held in July 2012. This time, more than fifteen trainers and seventy-five coordinators were trained to work in the "operation room" supporting 2,200 trained observers located all over Egypt. The observers sent more than 17,000 reports and up to 25,000 SMSs, most of which were mapped live. This is a far cry from 2,700 reports back in 2010.

In the midst of Egypt's revolution in January 2011, another major snowstorm hit the East Coast of the United States, impacting major cities such as Washington, DC, and Boston. As a result, members of the SBTF contacted PICnet to clone and spearhead the launch of several new self-help maps for each of these affected cities. By that time, in early 2011, members of the SBTF had already been engaged in a number of other deployments, recruiting hundreds of new volunteers, thus adding to their social capital. When the United Nations requested a live crisis map of Libya several weeks later, the SBTF had accumulated enough capital and strong ties to see them through their longest and most challenging deployment yet. This project, more than any other, had the most direct impact on the United Nations, going so far as changing the OCHA's own information management workflows as a result of collaborating with a more *metis*-based, informal network. UN professionals working side-by-side (on Skype) with digital volunteers from around the world also adopted some of this new "local expertise" on crisis-mapping. Since then, SBTF volunteers have also been engaged in supporting other crisis-mapping efforts as "side deployments," independently of the SBTF. These side deployments have included supporting pro-democracy and human rights projects in partnership with activists in Syria and the Sudan.

When seen through this "people-centered" lens of accumulated social capital, it is difficult to look at a crisis map quite the same way again. Crisis maps are facilitating the growth of social capital across international networks, such as in case of the SBTF, and at the local level, which was more strongly exhibited by the U-Shahid example. These maps, however, don't depict the *metis*, the weak and strong ties—the social bonds and social capital—that went into mapping hundreds or thousands of dots. Nor do the maps reveal the resulting strengthening of these bonds and the swelling of the social capital, or the learning and expanded *metis*. For example, it has been said that the DC snowstorm crisis map failed since it got very little traction. This is true for the initial deployment of 2010 but certainly not the case for subsequent deployments of the Snowmageddon platform in Washington, DC, New York, and Boston in early 2011. To be sure, one uncovers a different narrative when applying the lens of social capital; a narrative interwoven by threads of learning and *metis*. As the major snowstorm approached these cities, members of the SBTF reached out to the team behind the initial Snowmageddon platform to have it re-launched and re-customized for the other cities. Members of the Task Force based in Washington, DC, New York, and Boston subsequently took the lead in promoting and populating their own crisis maps. The accumulation of social capital through the task force is the glue that made these deployments possible even though the first Snowmageddon map was of limited value at the time.

In sum, crisis maps are likely to be more successful if this social capital is at least partially in place before the crisis and has room to grow—particularly within the framework of limited statehood. In other words, while live crisis maps delineate the contours of limited statehood and governance—thus breaking the myth of total statehood—they can also build the social capital to offer alternative offline services and possibly constrain bad governance. At minimum, the social capital and *metis* that are accumulated facilitate self-organization and collective action, which are critical for self-governance. These crisis maps thus provide far more than critical situational awareness from the bottom up. They are platforms for self-organization and engines of social capital. In sum, "it appears as if Ushahidi's potential was rather that of creating a space where people can come together, from the remoteness of their homes and without having ever met, to actually become active participants in crises that happened thousands of miles away from their homes. In fact, through Ushahidi maps, a new relationality emerges centered on the sharing of a concern for crisis" (Achi 2012).

Conclusion

Recall Cyclone Bhola, which devastated East Pakistan in 1970. A week after the hazard struck, the Pakistani president acknowledged that his government had

made "mistakes in its handling of the relief efforts due to a lack of understanding of the magnitude of the disaster" (Wikipedia 2013). In other words, they did not have real-time situational awareness. They did not have a live crisis map, nor did the half-a-million people who were killed because of Pakistan's limited statehood, capacity, and situational awareness. The fury that resulted fueled the protests against the regime and spurred the war of independence that led to the birth of Bangladesh. Today, crowdsourced, self-help crisis maps enable citizens to improve their own situational awareness and coordinate their own disaster relief efforts independently of the state.

Take, for example, the case of citizen-based, self-organized humanitarian convoys in Libya, which were coordinated using the Twitter hashtag #LibyaConvoy and IntaFeen.com, a check-in and mapping platform developed in Egypt. The convoys were seen as largely successful, delivering important food and medical supplies to Tripoli and Benghazi. Now imagine that these #LibyaConvoy service-delivery efforts had been connected to the Libya crisis map launched by the United Nations. The result would have been a combined online and offline humanitarian response operation driven entirely by self-organized volunteers much like the Russia Help Map described in Chapter 7.

Scott rightly notes that "The quantitative technologies used to investigate social and economic life work best if the world they aim to describe can be remade in their image" (Scott 1998, 347). Today, however, the rise of citizen-based crowdsourced crisis maps means that the public sphere can describe the world as is rather than as seen or wished by the state. Scott writes: "Here, I believe, there is something to the classical anarchist claim—that the state, with its positive law and central institutions, undermines individuals' capacities for autonomous self-governance—that might apply to the planning grids of high modernism as well. Their own institutional legacy may be frail and evanescent, but they may impoverish the local wellsprings of economic, social, and cultural self-expression" (349). When backed by an authoritarian state, according to Scott, these maps of "legibility and control do partly succeed in shaping the natural and social environment after their image. To the degree that such thin maps do manage to impress themselves on social life, what kind of people do they foster?" (348). They foster passive, impoverished, and unengaged individuals who believe in the myth of statehood and obediently await government services during a crisis. State-centric maps are dead maps, cemeteries comprised of archaic forms of control, devoid of *metis* and social capital.

Live crowdsourced maps counter the prestructured worldview imposed by the state's planning grids. They reveal the limitations of governance, particularly during a crisis, and also offer a platform for self-expression and self-organization; for the provision of relief supplies and humanitarian aid—typically the state's responsibility. These crisis maps, Scott explains, not only fill the local wellsprings of human agency, they also crowdsource additional social capital that further facilitates collective action and self-governance: "An institution, social form, or

enterprise that takes much of its shape from the evolving metis of the people engaged in it will thereby enhance their range of experience and skills" (356). This is precisely what the SBTF does and what many crowdsourced crisis-mapping efforts entail. The result? Alternative service delivery following a disaster *and* the accumulation of social capital that further increases the chances of successful crisis maps and the likelihood of offline action. These efforts not only build digital social capital across international networks online but can also nurture local and offline capacity building as evidenced in the case of Haiti and Noula.

Of course, social capital is not the only explanatory variable in the equation for successful crisis maps. Nor is social capital a sufficient condition. Several other factors are necessary to ensure success. Preparedness is critical—hence the launch of the SBTF. In addition, the U-Shahid case was successful in large part because the team began preparing for the election-monitoring efforts months in advance. In neighboring Sudan, a similar project was attempted to monitor the presidential elections of 2010. It failed for two reasons. First, the group in charge hardly spent any time on preparedness and contingency-planning. Second, because of funding issues, the group was only able to secure an SMS short code to crowdsource reports via text message *after* the elections had started. So there are more necessary conditions for success than social capital. But these have already been written about whereas the focus on social capital has largely been ignored (Bailard, Baker, Hindman, Livingston, and Meier 2012; Meier 2011a).

While developing a conceptual framework to measure digital social capital goes beyond the scope of this chapter, it is clear that studies that analyze "offline" social capital are relevant to this research. Networks, trust, collective action, social inclusion, and communication are recurring themes in the research and discourse on social capital. Networks, for example, can be measured by the density and variety of membership. In sum, for a theory of change that focuses on digital social capital, these are the variables that need to be studied and monitored as both conditions for successful crisis maps *and* as measures of successful outcomes.