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From Crowdsourcing to Crowdseeding: The Cutting Edge of Empowerment?

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Introduction

In 2009 Columbia University launched a pilot project in the Kivus region of the Democratic Republic of Congo called *Voix des Kivus*.[1] The point of the project was to examine the potential for using SMS technology to gather conflict event data in real time.[2] Given previous experiences in Eastern Congo, the research team expected that collecting high-quality event data in Eastern Congo in the traditional way (sending out enumerator teams) would be challenging, while using traditional approaches to collect event information in real time would be impossible. As a result, the team launched an SMS-based pilot project called *Voix des Kivus*. Parts of the Kivus have cell phone coverage, and cell phones are relatively inexpensive. Moreover, while enumerator teams have problems crossing bad roads or washed-away bridges, phone signals do not. Finally, an SMS-message sent is received instantaneously.

The *Voix des Kivus* project used a crowdseeding approach that combines the innovations of crowdsourcing with standard principles of survey research and statistical analysis. It used a sampling frame, selected sites through systematic random sampling, and identified specific reporters in each site. Researchers then "seeded" mobile phones to select "phoneholders" and trained them to use the system and what to to report. Only these preselected reporters could contribute into the system, rather than anyone with a mobile phone or connection of some sort, as would be the case with standard crowdsourcing platforms.

This chapter draws on this experience to discuss how such ICT projects might empower populations by enabling the collection and distribution of information as an alternative mechanism of governance. A particularly popular system to marshal ICT's potential to collect and distribute information is crowdsourcing. *Voix des Kivus*, however, differed from this approach in that it made use of pre-identified message senders. This chapter will discuss that while this approach is particularly

successful in collecting large amounts of high-quality information, in real time, from populations that otherwise would have been very isolated, the crowdseeding approach also leads to concerns for participant protection. In the case of *Voix des Kivus*, these safety concerns made it difficult to scale up the project, villages had to remain mutually anonymous making interaction between the phoneholders impossible, and the researchers were placed in the uncomfortable position of acting as data censors. This chapter turns first to a description of *Voix des Kivus*. After that the chapter turns to a discussion of these more ethical implications that arose while implementing the project. Finally, this chapter discusses whether or not *Voix des Kivus* was successful in empowering its Congolese participants.

ICT and Empowerment

ICT has major potential to empower people. First, new technologies provide ordinary individuals with the ability to *collect information*. Moreover, they can do so without relying on intermediaries, such as state institutions or NGOs that might distort such information. Furthermore, one of the defining features of an area of limited statehood is the absence of reliable data about basic conditions. Where consolidated states exist, bureaus and agencies collect health statistics, monitor the environment, and file police reports. Where the state is missing, no such system of data collection exists, except for where NGOs and civil society organizations can fill the void. Second, ICT enables ordinary people to create *new forms of organization*. Technologies such as mobile phones and the Internet can be used for collective action. Finally, ICT enables people to *distribute information*. Areas of limited statehood are often isolated, leaving events unnoticed—or noticed only after months of silence and delay. New technologies can address this by providing fast and cost-effective means to send (and receive) large amounts of information.

By facilitating the collection and distribution of information, ICT empowers people in two major ways.[3] First, ICT makes it more difficult for important issues to be left out of consideration in decision-making arenas. Second, ICT increases knowledge among ordinary people about their preferences and options. ICT in areas of limited statehood, in other words, is not just about service delivery, as important as that is. ICT also affects political processes. Political power is not simply a matter of winning contests in political institutions reflected in concrete decisions.[4] Power is also located in the capacity to create or reinforce barriers to the public airing of policy issues (Bachrach and Baratz 1962). That is, power is also found in the ability to shape the agenda of issues that are to be considered—this is known as the *second face of power*. Cohen (1963, 13) illustrated this appropriately by saying that the press "may not be successful much of the time in telling people what to think, but it is stunningly successful in telling its readers what to think about. The world will look different to different people," Cohen continues,

"depending on the map that is drawn for them by writers, editors, and publishers of the paper they read." This fictional map might be purposely influenced by a decision-maker who tries to control the agenda, thereby trying to avoid the emergence of values and interests contrary to his interest. Because people can now obtain information directly, and from a possibly wide variety of sources, it is more difficult for such agenda-control. In addition, this map might also be biased because of more innocent reasons. Decision-makers might simply not be aware that certain issues are at play—this is particularly likely in areas of limited statehood where many events take place in isolation. ICT therefore empowers people by making it possible for hitherto unknown issues being raised.

Finally, one can also exercise power by influencing, shaping, or determining other people's wants and preferences. This is also known as the *third dimension of power* and follows from Lukes (1974).[5] Power is therefore also the ability to shape perceptions, cognitions, and preferences in such a way as to secure the acceptance of the status quo. This could be because no alternative appears to exist. Or this could be because it is seen as natural and unchangeable. People are simply resigned to their fate. Lukes (1974) introduces the importance of the concept of latent conflict in which those subject to power do not express or even remain unaware of their interests. By facilitating the collection of information ICT empowers these people by making it possible to learn about and recognize their interests. Furthermore, by making it cheap to distribute information, ICT make it possible for ordinary people to express these interests.

Voix des Kivus: Crowdseeding in Eastern Congo

To learn about the potential for ICT, and cell phones in particular, to empower people, this chapter looks at an SMS-based pilot project in the Democratic Republic of Congo. Columbia University implemented *Voix des Kivus* in 2009 in the Congolese province of South Kivu. In total the pilot project *was* implemented in eighteen villages spread over four territories.[6] The headquarters of *Voix des Kivus* was Bukavu, the capital city of South Kivu. Most of the province's NGOs are also located there. Each village had three phoneholders—individuals selected as recipients of a mobile phone—participating in *Voix des Kivus*: one representing the traditional leadership (often the chief of the village), one representing women's groups (often the head of the women's association), and one elected by the community. The chief is involved in most village affairs, from land conflict to marital disputes. The head of the women's association, on the other hand, is often the go-to person for issues such as domestic violence. Finally, a third person was elected to be a phoneholder.[7] Holders were trained extensively on the use of the phone and how to send messages to the system. They were provided with a phone, weekly credit, and a code-sheet that listed events of interest that might take place

in the village.[8] Phoneholders automatically received weekly credit (around \$1.50 or a one day's wage) that they could freely use. They were also reimbursed for the messages they sent. Sending messages to the *Voix des Kivus* was free to the phoneholders yet voluntary and self-directed. While users did not have to pay for each message, they were not given a financial reward for sending content to the system.

A standard cellphone linked to a laptop comprised the necessary equipment for receiving the messages. With other freely available software (FrontlineSMS, R, and LaTeX), messages received were automatically filtered, coded for content, cleaned to remove duplicates, and merged into a database. Graphs and tables were automatically generated and were then automatically mounted into bulletins spanning any period of interest and with different levels of sensitivity. Translations of noncoded text messages (often from Swahili or one of the local languages into French and English) were undertaken manually. To facilitate the sending of messages, code-books with pre-assigned codes to events were distributed. The codes were organized in ten categories: (1) presence of military forces, (2) attacks on the village, (3) deaths related to armed combat, (4) local violence and property loss, (5) displacement, (6) health events (7) natural disasters, (8) development and NGO activities, (9) social events and (10) special codes. The codes were distributed in French and Swahili to the phoneholders. If no event took place during the week the phoneholders would send the code "00." If an event took place that was not listed on the code-book or the reporter preferred to provide more detail, the code "98" followed by text could be send. Per SMS more than one event could be reported by separating codes with a semicolon.

Voix des Kivus was launched in August 2009 and during the first twelve months operated in only four villages. Then from August 2010 onwards the pilot project was expanded to eighteen villages. The project ended in 2011. In this short period *Voix des Kivus* received a total of 4,783 SMS messages with relevant content. The phoneholders sent messages about a total of 5,293 events of which 4,623 were unique—many village events were thus reported by more than one phoneholder. Of these SMS messages 1,244 were text-messages.[9] The uptake of the system was thus very enthusiastic, and the data that was generated was rich, including regular reports of conflict events: encroachments by various groups, abductions, looting, shootings, and sexual violence. Messages also contained accounts of crop failures and flooding, as well as of interventions by development organizations and other actors.

Did *Voix des Kivus* Empower Populations?

Voix des Kivus was successful in collecting large amounts of high-quality information, in real time, from populations that otherwise would have been very isolated

(Windt and Humphreys 2012). The system was enthusiastically received by participating villages and compared to more traditional data-gathering system was cheap to implement. Given this seeming success of *Voix des Kivus*, did the project lead to empowerment of populations living in areas of limited statehood?

DID *VOIX DES KIVUS* LEAD TO NEW MODES OF ORGANIZATION?

The answer is "no." Because of the area in which *Voix des Kivus* operated it was common to receive highly sensitive information—a sort of 911 call from a jungle in Central Africa. For example, reports were sometimes about sexual abuse or other types of violence perpetrated by different actors (regularly including names of perpetrators). In contrast to a crowdsourcing system where information is received from an unidentified, anonymous public, crowdseeding systems such as *Voix des Kivus* make use of identifiable users, in this case the fifty-four phoneholders. As a result, a great concern throughout the period of operation was the security of the phoneholders, despite efforts to mitigate the threat.

Before implementation of the *Voix des Kivus* project the crowdseeding approach was discussed with a wide range of experienced NGOs workers and focus groups, and interviews were conducted in eleven villages in Eastern Congo. Out of a concern for the safety of the phoneholders, initial designs called for phoneholders to be "invisible." That is, the project would keep the fact that three villagers are *Voix des Kivus* phoneholders unknown to the other villagers. This proved impractical in small villages where secrets are hard to keep. Moreover, fellow villagers and actors external to the village might come to see these phoneholders as spies. Both NGO workers and villagers suggested taking the opposite approach. As a result, before entry in a village the crowdseeding approach would be discussed and presented to the village chief. Only after his approval did *Voix des Kivus* organize a village meeting in which at least 40 percent of the village had to be present. During the meeting a *Voix des Kivus* team would explain the pilot project in great detail—including the potential security risks. It was only after the approval by the village that *Voix des Kivus* could be implemented. The three phoneholders would function as representatives for the village, and the village as a whole would be a *Voix des Kivus* village. In addition to embedding the project inside the village, the researchers kept risks to the phoneholders to a minimum in several ways. Initially, *Voix des Kivus* operated in just four villages. Only after a year of close monitoring of these four villages, fourteen more villages were added. Finally, the project was particularly careful with whom to share the data and what data to share, as will be discuss more below.

In principle, collective participation in a system like *Voix des Kivus* can lead to a kind of networking effect in which disparate villages engage with each other more directly and coordinate actions. Doing so would create new modes of governance,

even in the absence of a consolidated state. However, this kind of ICT-enabled collective action did not arise as part of the *Voix des Kivus* project for the simple reason that—out of concern for participant protection—the participating villages remained mutually anonymous. Villages were interested in the reports of other villages and wanted others to see their reports, but in practice the feedback they received was anonymous. Each village received only summary reports concerning their own messaging, plus aggregates of reports from elsewhere. Phoneholders were not able to get in contact with their peers from other villages owing to the security precautions imposed by the Columbia University team. The *Voix des Kivus* system was a hierarchical, vertical structure in which there was direct contact between the phoneholders and the system.

DID *VOIX DES KIVUS* ENABLE PEOPLE TO DISTRIBUTE INFORMATION?

The answer is "yes, but only to some extent." While *Voix des Kivus* started as an academic exercise to learn whether high-quality event data could be collected via SMS, the researcher team quickly learned the wider implications of the system. In a matter of weeks the project received hundreds of (often very sensitive) messages about events that had a negative impact on the lives of our phoneholders and their villages. As a result, the Columbia team found themselves ethically obliged to do more with the data than keep it in a database for future academic analysis. The researchers felt responsible for taking some sort of quick action in response to important events. Consequently, a system was set up with weekly bulletins. Each Monday a bulletin was produced and disseminated that presented information on events that took place in the preceding week. This emphasized the feeling among participants that *Voix de Kivus* gave them a "voice"—providing them with the ability to share their stories with the world. Indeed, after a year of operation, one of the phoneholders explained the volume of messages this way: "Many events take place here that nobody knows about. For the first time ever we are placed on a map." However, the level of community empowerment and ICT-enabled governance was limited for three reasons.

First, to ensure that subjects were not harmed, *Voix des Kivus* could not simply post unfiltered data as it entered the system. The researcher team therefore produced two different bulletins: a "non-sensitive bulletin" (without village identifiers), which could be distributed widely and was made available online each week, and a "sensitive bulletin" (with village identifiers but without holder identifiers). The question then arose: With whom can sensitive versions of the bulletin be shared? As a result, the researchers, dedicated to discovery and the scientific process, were placed in the uncomfortable position of acting as data censors. Should the bulletins be given to the Congolese army—who were themselves often the perpetrators of abuses reported through the system? Doing so might

put the phoneholders and the entire village at risk of reprisal. Should the reports be given to the UN peacekeeping army (MONUSCO), the main actor in Eastern Congo that could respond to violent events? The concern here was the possibility that MONUSCO would share the information with the government. The instinct of researchers is toward open access. But in this case this laudable principle could bring considerable danger to phoneholders.

The problem was addressed by deferring the decision to affected populations: Allow the users to determine who should have access to different pieces of information. After consultation with the phoneholders, the Columbia team researcher created a system that allowed phoneholders to include an extra code (1–4) to a message to indicate the event's level of sensitivity, and thereby with whom the information was to be shared: "1" meant only with *Voix des Kivus*, "2" indicated *Voix des Kivus* plus close partners, "3" allowed for sharing with *Voix des Kivus*, close partners and MONUSCO, and indicated "4" everybody. It was hoped that such a system would create bulletins without putting researchers at Columbia University in the position of censoring data. Data received by the *Voix des Kivus* system would be gathered and collated without editing the content of the message (except to remove duplicate entries and deleting personal identifiers).[10]

While phoneholders made use of this system, in practice, many messages did not include such a dissemination-code, and phoneholders deferred the decision to researchers. They put their faith in the *Voix des Kivus* project to share information with those who could make good use of the data. Given the concerns over security, the data about violence were not shared without the specific dissemination-code allowing for distribution beyond *Voix des Kivus* and close partners. MONUSCO (the UN peacekeeping army) was therefore often excluded as a recipient of information about violent events. As a result, at many times the researcher team in New York were better informed about daily events in Eastern Congo than were local actors, such as humanitarian organizations or the peacekeeping army in Bukavu.[11] It is quite possible that populations would have been willing to take serious risks, exposing themselves to retribution for reporting events, in order to stand up against abuse. But as initiators of the project, the Columbia team felt that they would be responsible for adverse events. As a result, their ethical concern to do no harm resulted in a certain denial of agency to populations.

The concern for security thus limited the potential reach of ICT-enabled governance by those living in eighteen villages in the Eastern Congo. This points to potential weaknesses in the crowdseeding method. Crowdseeding limited empowerment in two more ways. First, in the face of ethical concerns, it was difficult to scale up. Second, the information was not put to use. As researchers it was important to expand quickly in order to obtain data from a large number of villages. The initial designs called for an expansion to 100 villages throughout the province. However, not only was *Voix des Kivus* expanded slowly, beginning with but four villages, the obligations to protect both phoneholders and villages created barriers to taking the project to scale, even though no incidents threatened

the safety of the phoneholders and none of the phoneholders claimed that the project had somehow put them at risk. However, had the project been scaled up to its anticipated size, the attention of armed groups could have been drawn to in. As researchers on the other side of the planet, the Columbia team did not feel comfortable shouldering the responsibility for this possible outcome.

Second, during the implementation of *Voix des Kivus*, the researchers were careful not to make promises to those in the villages about any specific benefits associated with taking part in the program, beyond having access to a phone and receiving small credit payments. But, a system like *Voix des Kivus* inevitably creates expectations in participating villages. There was a palpable hope that if only the information about the situation of a village would get out to the world, then surely someone somewhere would provide relief. For example, phoneholders often said that while they did not expect direct material benefits from sending messages into to the *Voix des Kivus* system, they hoped that by doing so NGOs might intervene. Beyond reporting about events, the system was used in some cases simply to make requests, such as appeals for support with a health clinic or for support with schooling. In addition to the simple desire to express themselves—"We had a good Christmas"—the messages demonstrated the various instrumental uses to which communities wanted to put the system ("we need X medicine in village Y").[12] These are some of the weaknesses in the crowdseeding method used by *Voix des Kivus*. In the closing section we will consider a few of the benefits of the methods. But before we do that, we must next consider whether *Voix des Kivus* contributed to the creation of something like a new governance modality. We believe that given the limitations just considered, it did not.

The information collected by *Voix des Kivus* was shared with development organizations and international actors that received an approval from the phoneholders. These included several development organizations based in Bukavu who could use the data to evaluate the situation on the ground in the region. The program was also presented to the international community of development and protection agencies in South Kivu. The research team did so, among others, through a presentation at the weekly, UN OCHA–organized meeting of NGOs and international actors in Bukavu. For these actors, the system could in principle serve as an early warning mechanism; as a tool to prioritize interventions; or as a system to relay information to villages. In practice, many groups took interest in the project, including NGOs, philanthropists, and the US Department of State. Generally, the contacts came from people focused specifically on information technologies, as well as groups working on fundraising. The humanitarian organizations on the ground, including the various UN bodies and some of the organizations that received the data also voiced interest in the project, but with no concrete result. The potential was demonstrated and the data were collected. *But we know of no instances in which development or humanitarian agencies responded to incidents or issues raised by phoneholders.* The data never played a role in operational planning. As Livingston and Walter-Drop put it in this volume's concluding chapter, *Voix des*

Kivus enhanced the management of "bits," but it could do nothing about the redistribution of "atoms"—such as much needed food, clean water, security, and other public goods. Quite understandably, the researcher team was in the uncomfortable position of knowing about events in the Democratic Republic of Congo, but without the ability to solve them. The reason for this, in part, involved a scaling dilemma. On the one hand, there was considerable hesitation among those leading the project to scale up data collection without the needed confidence that the data would be put to proper use. Yet it would be clear how, exactly, the data could be used without scaling up.

DID *VOIX DES KIVUS* PROVIDE THE MEANS FOR PARTICIPANTS TO COLLECT INFORMATION THEMSELVES?

The answer is "maybe." The project was initially set up as a data-gathering exercise; via the system, we wanted to learn about conflict events taking place in Eastern Congo. However, cell phones can also be used to receive information. Moreover, in contrast to crowdsourcing, crowdseeding does not make use of an anonymous crowd and thus (tailored) information can be sent to the phoneholders. Indeed, when after a year of operation the research team visited the participating villages the phoneholders suggested for the system to disseminate information to them. In particular they suggested the dissemination of information related to food prices and markets, which could help them obtain better prices for their crops and thus augment their ability to maintain an adequate standard of living for themselves and their families. *Voix de Kivus*, as a result, set up a system whereby every second week an SMS-message was send to its phoneholders with price information about local staple in nearby markets—these products included rice, cassava, tomatoes, and butter, but also products like petrol. This is similar to other mobile-based information systems, such as Trade at Hand and the Grameen Foundation's Community Knowledge Workers (Grameen Foundation 2013; ITC 2008).

Another benefit specific to crowdseeding is that it provides to communities the means to participate in the system. In the case of *Voix des Kivus*, not only were phoneholders supplied with a phone and reimbursed for sent SMS-messages, but they also received a weekly phone credit of around $1.50 (more or less one day's wage) that they could freely use. One reason for this extra phone credit was to incentivize the participants for their continued support. Yet another reason was the hope that by providing the means, *Voix des Kivus* could help create more economic opportunities and enable people to participate more fully in civic society. For example, a farmer can get market prices for his goods, a job seeker can connect with a potential employer in a nearby village, and people in remote communities can participate in call-in radio shows about local issues. The Grameen Foundation (especially Grameenphone) is a good example of the use the mobile phone for such purposes. However, in *Voix des Kivus*'s period of operation we know of no

instances in which people used their phones for anything other than simple contact with the system.

Is Crowdseeding the Cutting Edge of Empowerment?

Given the significant impediments created by the crowdseeding method used by *Voix des Kivus*, it is perhaps worthwhile to take a moment to consider the relative strengths and weaknesses of crowdseeding and crowdsourcing methods. This section discusses a set of benefits particular to crowdseeding that facilitate the empowerment of populations in ways as discussed on page XX.

Most mapping efforts are based on crowdsourcing; a particularly powerful system to marshal ICT's potential for the collection and distribution of information. In contrast to normal outsourcing, crowdsourcing outsources a task not to a specific body but to an undefined public (Howe 2009). Crowdsourcing is used for a wide variety of tasks—from solving problems to collecting information. There are two major benefits to crowdsourcing. First, it is possible to reach a large audience in a relatively inexpensive way. Based upon the idea that a group of people is often more intelligent than an individual, crowdsourcing has the potential to solve problems faster and improve data collection (Surowiecki 2005). A second benefit is that these large amounts of data can be obtained quickly—often in real-time. Many of these crowdsourcing systems make use of the Internet or cell phone technology. The Ushahidi platform, which is an open source project that allows users to crowdsource crisis information sent via mobile, is one example. People can send an SMS-message to a central platform, where the messages are gathered, stored, and visualized on a map and timeline. The platform has seen a wide application from humanitarian response in Liberia to monitoring radiation levels in Japan. Given the benefits of crowdsourcing, it is not surprising that researchers have used such systems. But it is worth considering the merits of each system.

The first benefit of a crowdseeding system is to increase the crowd. Under crowdsourcing people can only participate if they know about the project. Given the isolation of the villages in Eastern Congo, very few people would know about the *Voix des Kivus* project. As a result, the size of the crowd would decrease to only those people who are aware of the project. Worse, most people in the Congo do not have a phone. If they do have a phone, they often lack the money to pay for a text-message. As a result, a crowdsourcing system would make use of an even smaller part of the population: Only those who are aware of the project and those who are able to partake in it. As a result, especially in areas of limited statehood, we expect the crowd to be only a very small part of the population. A crowdseeding system that selects, visits, and trains the reporters, and provides a mobile

phone with credit will make use of the whole population. Crowdseeding therefore makes it possible for people to participate that otherwise would have not.

Second, not only does crowdseeding increase the crowd, but it also selects a random subset to participate in the system. This increases the quality of the information provided in two ways. First, by selecting a representative sample, the system obtains a representative picture. The system receives messages from people who have a cell phone and are willing to pay the cost of an SMS. Indeed, not only are there few such people in the Congo, but they are probably from a relatively unrepresentative demographic group. Studies that have analyzed the demographics of Amazon Mechanical Turk, for example, find that the crowd-workers are not representative of the wider population (Berinsky, Huber, and Lenz 2012; Ross, Irani, Silberman, Zalvidar, and Tomlinson 2010). Second, people are strategic. We expected this to be a particular problem in the Democratic Republic of Congo because reporters hoping for humanitarian intervention might send incorrect information. A crowdseeding system builds a relationship with the phoneholders thereby increasing incentives to report truthfully. In assessing the strengths and weaknesses of crowdsourcing and crowdseeding, these positive outcomes must also be factored in.

Conclusion

ICT can empower people by creating new modes of governance and by enabling the collection and distribution of information. In some cases, crowdseeding holds greater potential than crowdsourcing to marshal these benefits of ICT because crowdseeding can increase the total number of participants (by making people aware of the system and by enabling them to participate), and it makes use of a representative part of this population of participants. The benefits are particularly clear in areas of limited statehood where people live in isolation and often do not have the means to participate in ICT-enabled systems. The experiences with *Voix des Kivus* in Eastern Congo show that it is possible to implement such a crowdseeding system. These experiences, however, also emphasize the limitations of a crowdseeding system: *Voix des Kivus* did not create new modes of governance; only a part of the data was distributed beyond the system; the usefulness of the information provided was limited because the project did not scale up; and external actors did not act on the voice provided to participants.

Nonetheless, we should not be overly pessimistic. A likely reason why no new modes of governance were created and why only a subset of the data was distributed was because the implementers of *Voix des Kivus* were protective of the systems' participants, perhaps overly protective. More important, *Voix des Kivus* collected sensitive data that some groups likely do not to want to see collected.

Things would be very different if the topic of investigation was bird species and not conflict events.

Voix des Kivus also shows the need for what one might call the "shadow of hierarchy"—the implicit need of participation by the state(s) or humanitarian actors. While *Voix des Kivus* made it possible to learn about problems facing participating communities (the bits), it could do nothing about the redistribution of things such as such as food, clean water, security, and other public goods (the atoms). Agencies external to *Voix des Kivus* did not act upon the provided information because the project was not brought to scale. Only then, one might say, would the data become useful. But Columbia University did not want to scale up the project for security reasons. When brought to scale, more people—among others the local violent groups—would be more likely to know about the project. Also, the research team felt—as academics on the other side of the Atlantic—that they were not the right people to bring it to scale. However, it might very well be possible that the scale–insecurity relationship is hump-shaped. That is, an initial expansion would bring more risk, but if the project is implemented throughout the region, known among many and supported by many, that the risks would be low again.

Notes

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2. This project was led by the author and Macartan Humphreys and was funded by USAID.
3. We leave a discussion of ICT's importance for empowerment by creating new forms of organization to the discussion of the "Russia Help Map" in Chapter 7.
4. This view of power is also known as the *first dimension of power*. Dahl (1961) is a seminal read here.
5. See Gaventa (1982) for a seminal illustration of this third dimension of power.
6. The territory is the administrative unit below the province and above the chiefdom.
7. These reporters can also be selected randomly to obtain a representative sample *within* the village.
8. All documents can be found on the project's website: http://www.cu-csds.org/projects/event-mapping-in-congo/. This also includes the computer code to create bulletins and a "Voix des Kivus Implemention Guide" for organizations that want to set up a similar system.
9. This is based on the FrontlineSMS export of August 1, 2011. Identical messages received from the same reporter within thirty minutes of each other, and identical messages received from different representatives in the same village within twenty-four hours of each other, are treated as single events.
10. Although we engaged in various forms of data verification to assess whether the data could be used for statistical analysis, the system could not reasonably vouch for the reliability of individual reports; rather, the principle employed was that reports should be viewed and interpreted as statements made by village representatives and not as independent or expert assessments of conditions on the ground. In the bulletins, a simple metric was provided

that indicated how many of the three phoneholders in a given village reported the same incident.

11. For a discussion about the confluence of local and distant realities see, for example, James Rosenau (2003) and Manuel Castells (2009).

12. Note that the type of information received might to some extent depend on the type of seeder. It could be that if the seeder was an NGO and not a research team, as was the case for *Voix des Kivus*, participating communities might send more information about population needs.