

**Voix des Kivus:  
Reflections on a Crowdsourcing Approach to Conflict Event Data Gathering**

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## **Introduction**

In 2009 we launched a pilot project that sought to examine the potential for using SMS technology to gather real time event data of a quality that would be useful for researchers. Our first motivation was *measurement*. The basic idea (described in more detail below) was to identify correspondents in a random sample of villages in Eastern DRC, provide them with cell phones and lines of credit over an 18 month period, and ask them, with minimal incentives, to report on conflict (and more general) events in real time. This data, gathered from a representative set of sites, would then be used to assess the effects of development projects in the region.

With our first focus on data gathering, our initial designs did not think through how local populations might reinterpret the project. Nor did they develop the ways the data generated would be useful to participating populations. But of course these factors loomed very large as soon as we hit the field. They forced a restructuring of the project with a new dual focus: a measurement focus mostly of interest to academic audiences and ICT aficionados, and an activist focus of interest to everyone else. The dual research questions of the project then became: “can researchers work with fragile populations to generate reliable measures in real time?” And “Is doing so helpful to those populations?” The short answers to these two questions, based on our experience at least, are “Yes” and “Probably not.” And perhaps the answer to the first is yes only because project participants hope that the answer to the second is really yes.

In this paper we describe the project, the kinds of data it gathered and how it was received by local communities and more broadly. We focus first on the measurement elements which were the original motivations, but then turn to reflect on the effects of the project on participating populations, addressing themes central to the broader collection of papers in this conference: benefits, risks, networks, and ownership. As we do so we seek to use this case to highlight ways

that engaging in a project with both a research and an activist component can raise concerns that compromise both agendas.

## The Measurement Agenda

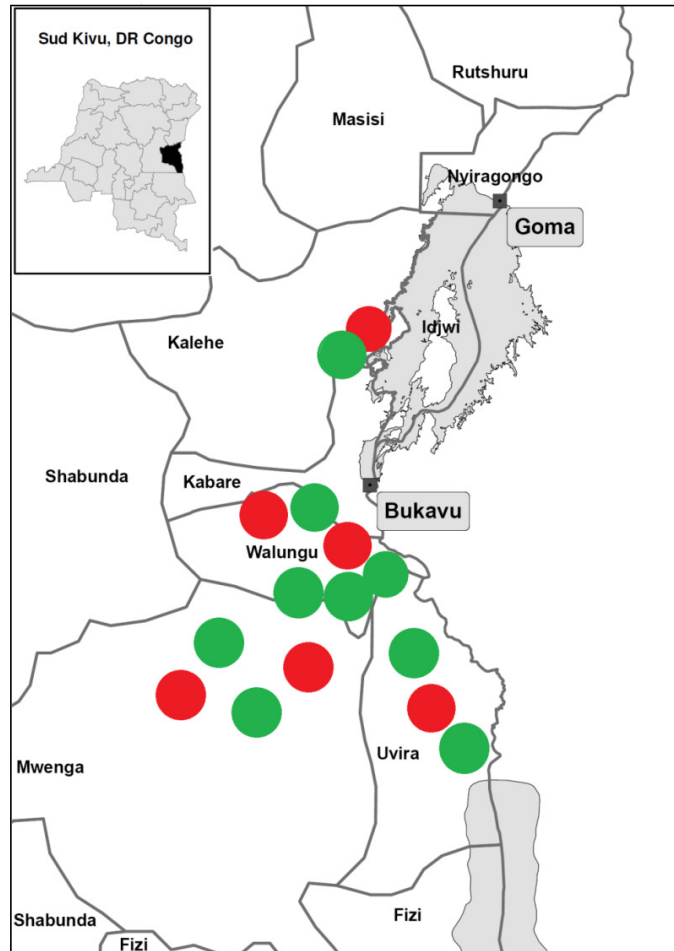
*Voix des Kivus* started as a pilot project with the aim of assessing the feasibility of using a decentralized cell phone based SMS platform for collating events information. The pilot was launched in four villages in the summer of 2009 and scaled up to 18 by late 2010.

**Motivation.** There are other platforms for gathering data from decentralized sources like this, most notably the innovative Ushahidi platform already existed in DRC. A motivation for the *Voix des Kivus* approach was to build on the strengths of these systems but in a way that could generate *representative* data. The concern we had with a more open system like Ushahidi was that it is hard to assess whether the data is representative or not—what is the population of senders? What biases arise from the self selection that is common in crowdsourcing approaches? Our approach instead was to try to combine the innovations of Ushahidi and related systems, with standard principles of survey research and statistical analysis. We generated a sampling frame, selected sites through systematic random sampling, and identified specific reporters in each site. Only the pre-selected reporters could feed into the system. We believe this approach has three advantages over common crowdsourcing approaches: the messages come from representative sites; the reporters are incentivized to engage regularly, and the reports are more easily verified, and less vulnerable to manipulation, since the reporters are known. A key disadvantage however is that precisely because reporters are part of the system they may be at greater risks if groups oppose the data gathering project.

**People.** The project operated in a random sample of villages of the war-torn province of Sud Kivu in the Democratic Republic of Congo. The specific selection stratified on chiefdoms as well as on information on exposure to development aid. In each village participating in *Voix des Kivus* there are three cell phone holders: one representing the traditional leadership, one representing women's groups, and one elected by the community. Holders are provided with a phone, monthly credit, and a codesheet that lists possible events that can take place in the village. After the village grants its consent to undertake the project and holds an election to select the third phone holder, the holders receive training in using the phone. Holders then participate publicly and make themselves available to any village member who seeks to post messages through them. Continued engagement by holders requires that they post at least one message a week, although that message may be a null (empty) message if no events of note have occurred (or if they simply do not want to share information). Holders send information

on a purely voluntary basis and are reimbursed for the cost of each message sent. In this way sending is free and users are free to send.

**Figure 1: Village Sampling**



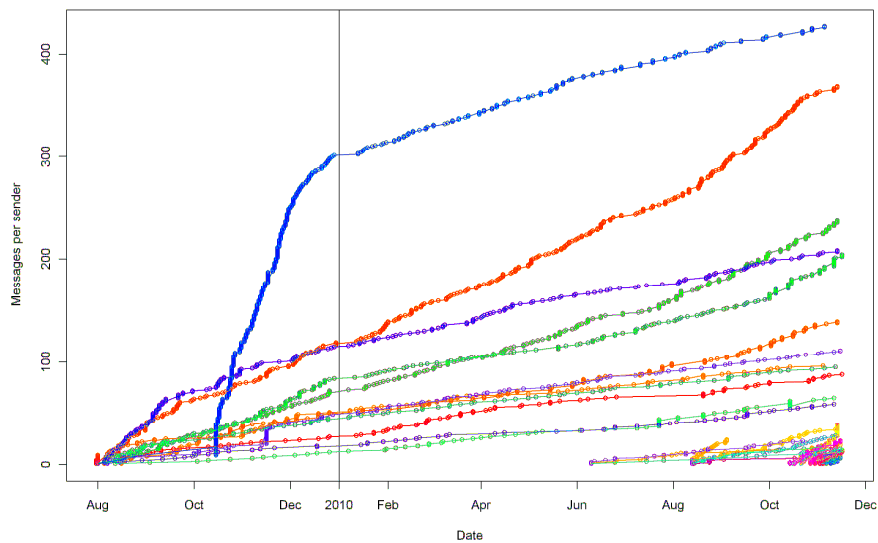
**Note:** The village were randomly sampled villages in territories in South Kivu. The set of villages were selected to include both villages that are receiving international development aid (green points marked above) and those that are not (red points).

**Technology.** The technology for *Voix des Kivus* is cheap and simple to use. Built on the excellent and freely available FrontlineSMS software, the system allows holders to send numeric or full text posts from almost any cell phone. On the receiving side there is a standard cell phone linked to a laptop linked to the internet. Messages received are automatically filtered according to origin, coded for content, cleaned to remove duplicates, and merged into a database. Graphs and tables are automatically generated which can then be automatically mounted into bulletins spanning any period of interest and with different levels of sensitivity. The software and code used for analysis and visualization is all open source (R and LaTeX). Translations of non-coded text messages (often from Swahili into French and English) are undertaken manually. All in all

the system could be set up for less than \$1000 and could operate with fixed costs per village of about \$200 and running costs of about \$10 a month.

Data from reporting using the *Voix des Kivus* system is gathered and collated without editing the content of the message (except to remove duplicate entries). 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. A simple metric was provided with all reports that indicated how many of the three phone holders in a given village reported the same incident.

**Figure 2: Message Sent**



The figure shows the cumulative number of messages sent per phone holder between summer of 2009 and the end of 2010. Phone holders show no sign of reporting fatigue.

**Challenges.** Going in we were conscious of multiple possible challenges and sought to use the project to assess how important they were. On the system side the concerns were quite basic – would network coverage be wide enough and would users be able to charge their phones? The answer to both was yes. Although not all areas receive networks, very large areas now do including all the most populated areas. Charging phones also turned out to be relatively easy with the use of solar technology which we provided to off-grid villages. The social concerns were greater: would populations be interested? would they be able to engage? The greatest concern however was the security of the phone holders—would participation in the system

produce security risks? We put in place multiple measures to reduce risks and started off the system very slowly and with high levels of monitoring to assess these risks. We found that at no point did any user indicate any security concern of any form arising from their participation in the project. We do not know however whether this would be true if the project were brought to scale, and the concern that it might was one reason that we did not want to increase the size of the project.

**Data.** The uptake of the system was surprisingly enthusiastic. In 18 months the phone holders sent over 4,000 pre-coded messages and more than 1,000 text messages since. This response rate is especially strong considering that the pilot for *Voix des Kivus* consisted of just four villages for much of the early period. Also striking is that the rate of sending showed no signs of easing up. As seen in Figure 2, different senders sent at different rates but in general each sent at a constant rate throughout the course of the project.

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 floodings, as well as of interventions by development organizations and other actors. Beyond reporting, the system was used in some cases simply to make requests, for support with a health clinic, for support with schooling. The system was also demonstrably workable; it was cheap and many of the concerns that we faced going in turned out not to materialize into serious impediments.

But was it any use?

### **The Activist Agenda: Was *Voix des Kivus* of Any Use?**

When we hit the field we described to participating villages our interest in gathering the data for research purposes. In a general sense this research if implemented right could produce benefits for populations, but we could not promise any specific benefits to taking part beyond having access to a phone and receiving small credit payments. The communities we talked to had other ideas however. They welcomed *Voix des Kivus* as an instrument for communicating with the rest of the world, to make their voice heard. A range of messages received by the system show both the instrumental uses to which communities wanted to put the system (“we need X medicine in village Y”) to the simply expressive (“We had a good Christmas in village X”).

There was inevitably a hope that if information about the situation of these villages gets out to the world that someone somewhere will answer. We insisted on the uncertainty of this but the expectations clearly persisted. As a result we started to feel strong ethical obligations to the

reporters and felt responsible to make sure that their data got out and got out quickly. But the responsibility to ensure that subjects do not come to harm also meant we could not simply post uncensored data as it entered our system as this could put holders at risk. Instead our approach was to collate the data into weekly bulletins and start disseminating these.

Each Monday a bulletin was produced and disseminated that presents data on events that took place in the preceding week. Because of the sensitive nature of some of the information there were two different types of bulletins: a “nonsensitive bulletin” (without village identifiers) which can be distributed widely and was made available online each week, and a “sensitive bulletin” (with village identifiers but without holder identifiers) that was shared with development organizations and international actors that received an OK from the phone holders. The latter included several development organizations based in Bukavu, who could use the data to evaluate the situation on the ground throughout the region. The program was also presented to the entire international community of development and protection agencies in South Kivu through a presentation at their protection cluster meeting 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.

Our work on this project became driven by concerns other than those that had brought us there in the first place; producing these bulletins yielded no *academic* benefits of any form; rather we found ourselves compiling and disseminating the data in this way because of ethical obligations we felt to participants in a project that had clear political implications alongside the more modest goal of measurement. We could measure but we could not just sit on the data. Did these efforts pay off?

In practice a lot of groups did take interest in the project. Various groups including humanitarian NGOs, philanthropists, and the US Department of State got in touch to voice their interest in the project. Generally the contacts came from people focused specifically on information technologies as well as groups working on fundraising and marketing and these expressed great excitement. The humanitarian organizations on the ground, including the various UN bodies, also voiced interest in the project (whenever we reached out to them) but to the best of our knowledge made no use of it in any way. Indeed, *we know of no instances in which development or humanitarian agencies responded to incidents or issues raised by phone holders*, and of no serious attempts to integrate the data into operations. Our conclusion is that the project seemed much more interesting to people that could not make use of it than to those that could.

There are likely both good and bad reasons for this. The best reason is probably that the data, emanating from a pilot rather a larger universe of cases, was simply too narrow an empirical base. This led to something of a catch 22 where we felt hesitant to scale up without confidence that the data would be put to good use if we did but unable to find out how the data would be used without going to scale.

So why not take the project to scale and find out? A number of the groups that contacted us voiced an interest in finding ways to scale up. We broadly supported the idea but by the time we were half way through the project we were also convinced that *we were the wrong people to be doing this work*. As a university we were well placed to engage in the assessment of tools but the sorts of ethical constraints we felt as researchers created tensions that were already visible in the pilot and that would be compromising both to us and to the utility of a project like this.

## Compromises

There are at least three key ways in which we felt that our position as researchers leading a data project of this form compromised us and the project and that convinced us not to lead an expansion.

**Inability to bear responsibility for adverse effects.** Our obligations to protect both reporters and populations sending messages through reporters made us reluctant to take the project to scale—or even to publicize it widely—even though this is something that participants would have valued. 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 we felt that we would be responsible for adverse events; the effect was that our concern to do no harm involved a certain denial of agency to populations, preventing them to some extent in engaging in contentious politics.

**Stunted network development.** Our concerns for user protection also inhibited the social development of the project. In principle collective participation in a system like Voix des Kivus could lead to a kind of networking effect in which disparate villages engage with each other more directly and coordinate on concerted action. This kind of networking 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 very interested in the reports of other villages and wanted others to see their reports, but in practice the feedback they received was anonymized; each village received summary reports on their own messaging plus aggregates of reports from elsewhere. A more risk tolerant programmatic

approach might have forgone anonymity in order to allow for greater scope for networking across users.

**Researchers as censors.** A third point of compromise which affected us more strongly than it did the project was that we found ourselves in the uncomfortable position of acting as data censors. Very quickly we had to decide with whom we should share the data. Should we share it with the DRC army (who were often the perpetrators of the abuse reported through the system)? With the government? With the UN, that we knew would likely share their information in turn with the government? As researchers our instincts are towards open access, but in this case this principle could bring risk to students. Our approach was to try to defer to populations and to establish a system where users could determine who they wanted to have access to different pieces of information. But in practice users in turn wanted to defer to us, asking us to share with whomever we felt could make good use of the data (but not with anyone who might misuse it).

The final point on taking the project to scale is perhaps the most sobering. While we did not want to be leading a scaled up version of Voix des Kivus, we would have been happy to broker a match between potential funders and groups on the ground, if we could find them. But while there were various leads for funders we were not able to find groups on the ground motivated to take ownership. We pursued short leads with local offices of international organizations and explored the possibility of working with interested activists to establish a local NGO that could lead a project of this form as well as with organizations on the ground that would be in a position to respond to the data entering the system. For us this failure to find a local lead underscored the inconsistent ways the project was received: with great hope among participating populations that someone would make use of it, with great enthusiasm among technology enthusiasts and social media innovators who are often unable to make much use of the actual data, and with general apathy from those groups that are actually best placed to make use of it.