

Getting “More Eyes” in Afghanistan Experiments in Promoting Indigenous Self-Reporting of Local Conditions and Sentiment

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Summary

Many dimensions of the conflict in Afghanistan would benefit from a reliable and timely assessment of regional (e.g., Province-, District- or village-level) conditions (for example, both ISAF’s active COIN strategy and ISAF/GIRoA transition planning require reliable assessments of Provincial stability). Indeed, the essence of COIN lies in the “hearts and minds” of the local population whose conditions and sentiment are notoriously difficult to determine. During approximately one year starting in May of 2010, the Defense Advanced Research Projects Agency (DARPA) conducted a series of (for lack of a better term) “crowd-sourcing” pilots to learn how a combination of modern communications devices (e.g. phones, smart phones, laptops), culturally-appropriate social networking and careful choice of participating sub-populations and goals, and incentive strategies could result in such reliable self-reporting of local conditions and sentiment. This White Paper describes these efforts, including lessons learned, successes and pitfalls, and recommendations, and further outlines some core principles we used and believe will be valuable to consider in future efforts.

Background and Purpose:

Assessment of counterinsurgency operations and stability operations requires the ability to gather data on the perceptions and attitudes of the local population. In order to understand trends, these measurements must be consistent and persistent over time. Traditionally, the US agencies engaged in assessing such operations have gathered the necessary data through

¹The work reported in this White Paper was the result of the efforts of many individuals in the extended More Eyes team, including Dale (Muddy) Waters, Greg Fischer, David Warner, Kina Weil, Ted Dang, Mark Anderson, Cyrus Adahi, Dennis Gallagher, James (Bud) Joiner, and others.

observation, interviews, and polls. These methods of data collection have been employed for many decades, but are impractical for several reasons:

1. Traditional data collection methods require a significant investment in sensors and people over long periods of time.
2. Using these methods, it is extremely difficult to maintain consistency and objectivity over a long period to develop valid trends.
3. Traditional methods of data collection can influence the data itself. Persons being interviewed or polled can be influenced by the process itself, resulting in biased and, perhaps, invalid data

Recent anecdotal evidence, including DARPA's experience with the Red Balloon Challenge in December 2009, indicated that it was possible to use social networking techniques to catalyze the local population to generate "white" data useful for assessing stability at multiple levels (regional, provincial, district, and village). White data is generated spontaneously by the local population in the course of everyday business, untainted by influence of outsiders. These "crowd-sourced" data include network chatter on events directly relevant to the security and stability of a specific area (i.e., roadblocks, gunfire, crowd-gatherings). It also includes economic indicators, such as commodity pricing, crop yields, and pricing and economic well-being. There are several efforts underway in Afghanistan to collect white data, including a number of databases populated and used by a number of different organizations for many disparate purposes.

Coinciding with this anecdotal evidence of crowd-sourcing potential, advances in mobile and web communications technologies (e.g., Android) provided a means for creating targeted social networks quickly and flexibly. The prevalence of robust mobile networks, together with a motivated population, it was thought, could be leveraged to generate significant quantities of white data that could be used to help assess local conditions quickly and inexpensively.

In March of 2010, at a meeting between USAID leaders in Afghanistan and the Director, DARPA, senior USAID leaders requested DARPA assistance to explore innovative techniques for overcoming the difficulties of collecting and displaying data to assess stability conditions. DARPA implemented the More Eyes program to explore the ability to generate crowd-sourced data, integrate it in a common repository with other white data, and develop innovative techniques to display this data to support stability planning.

Methodology:

The More Eyes project was designed to explore methods to overcome the difficulties accompanying traditional methods to gather, store, and display data to support assessment and planning of stability operations. The capability objectives and goals of More Eyes are aligned along three lines of effort:

1. Increase speed and effectiveness of information collection through novel combinations of crowd-sourced information with existing data.

More Eyes' first challenge was to generate crowd-sourced data. The approach was to catalyze interaction among local residents by enabling and incentivize the local population to participate in mobile phone and web applications. In theory, these interactions will reveal unbiased raw data that can be used to evaluate stability conditions on the ground. The challenge was to generate this data in formats that could be conveniently collected, standardized and integrated.

Several "pilots" were developed to catalyze electronic communications among the local population. Each of these pilots was designed to provide prompt data directly from the local population that could be used to understand security and stability conditions in the field. Furthermore, More Eyes intended to leverage the most appropriate mobile communications

technologies to elicit such information from remote areas that would otherwise be impossible or impractical to access using traditional methods. These pilots will be described in more detail later in this paper.

These pilots were designed to create maximum geographic and demographic overlap. More Eyes used this overlap to create the synergistic and mutual-reinforcement to promote a self sustaining process. For example, the ConnectJalalabad pilot reached many of the same people and areas covered by Nangarhar University Agricultural pilot. By partnering with a local not-for-profit radio station (SAFA FM), and the Department of Agriculture, Irrigation, & Livestock (DAIL), More Eyes conducted open-ended inquiries of farmers' needs in Nangarhar Province. The radio station aired public service announcements and farmers texted in responses via SMS. The objective was to create a self sustaining information loop that enabled both agribusiness and DAIL's ability to meet farmer's needs.

In addition to generating crowd-sourced data through these pilots, More Eyes identified and integrated existing sources of "white" data that provided useful insights into the security and stability conditions in at the provincial and district levels.

2. Assimilate real-time and latent data streams into a common data set.

The data gathered from crowd-sourcing techniques was integrated with data from existing sources – real-time feeds, if possible - in the More Eyes data repository. The More Eyes data repository consisted of several elements:

- Data Collection Interface (DCI) – Data from the sources described above were captured in a variety of formats, including:
 - Structured – Relational Databases
 - Unstructured – Documents, images, , video and audio, and excel
 - SMS and MMS services
 - Open Data Kit services – from mobile apps developed for pilots
 - Google Applications – from mobile apps developed for pilots
 - Emails

To the maximum extent possible, structured data was standardized to a common standard and sent to a structured Mongo database in the Data Analytic Interface (DAI). Unstructured data was maintained in a separate database in the DAI

- Data Analytic Interface (DAI) – Once ingested, data was stored to facilitate common access for several functions. The DAI also contained a capability to transform the structured data using data analytic techniques to allow more efficient use in further analysis and display.
- Data Presentation Interface (DPI) –The DPI provided the interface for analysis and display tools to access the data efficiently. The DPI contained a geoserver, which configured the data for efficient geospatial analysis and display, and a Wildfire application to allow access to unstructured data. Many of the pilots depended on mobile or web display tools to feed data back to the public in a useful format. These tools accessed the data via the DPI.

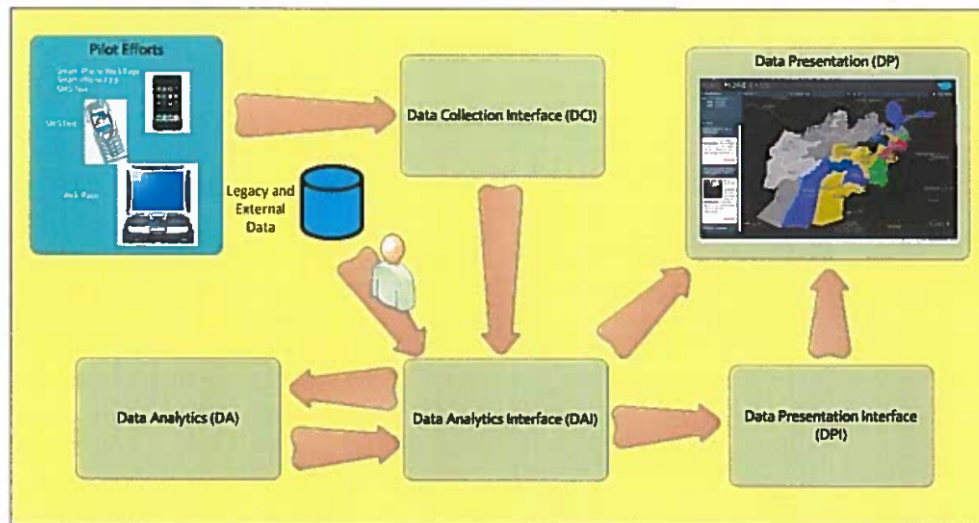


Figure : Data Repository Architecture

More, more, more (DataTactics)

3. Create a graphical user interface for quasi-static data sets and high volume real-time data streams

Ultimately, More Eyes intended to generate and provide data useful for stability planning. A Ushahidi-type tool was developed to provide an easy way for planners to visualize relevant data quickly, and to make judgments as to the stability conditions in regions of interest.

More, more, more (FortiosOne)

More Eyes Accomplishments:

The More Eyes team achieved several groundbreaking accomplishments. First, More Eyes designed and implemented several crowd-sourcing pilots. These included:

- ConnectJalalabad. Through this pilot, More Eyes helped commercial media partners understand their listenership and better target advertisers. Using a "broadcast out, SMS in" scheme, More Eyes partnered with the SAFA radio station in Jalalabad to conduct a series of publicity campaigns and provide the resources to collect and process the SMS responses. More Eyes collected over 12,000 SMS messages through this pilot. Using this information, SAFA was able to develop a demographic profile of its listeners. By understand its listeners' interests and behaviors, SAFA was better able to target its content and advertising to bolster listener loyalty and involvement. As a result of this

pilot, a regional media conglomerate (TV and radio) is considering expanding this program to multiple stations specializing in women's affairs and medical issues.

- **Afghanistan Atmospherics.** More Eyes worked with Defense Intelligence Agency to facilitate data capture, storage and exploitation of data in the Afghanistan Atmospherics (AA) program. The AA program uses selected local persons to passively observe and report on things they see and hear in the course of everyday activities. More Eyes provided mobile phones with tailored applications to facilitate their ability to make these reports. The applications also provided a conduit for posting these reports to the More Eyes common data repository allowing for a more detailed analysis of stability. To this point, over 100 geo-coded paragraph messages have been generated and posted to the More Eyes repository.
- **Nangarhar University.** More Eyes built on relationships with the Nangarhar University Agriculture Department to promote reporting on the agricultural economy via mobile phones and tailored applications. When faculty, researchers and students traveled to rural areas, they were encouraged to use their mobile phones to send SMS messages reporting on local market prices, areas of agricultural land usage, and farmers' concerns and issues regarding agricultural activity. This data is currently being published on Ushahidi-type display at <http://nuagriculture.crowdmap.com>.
- **Medical Clinics/Midwives.** More Eyes also partnered with the medical community in Nangarhar Province to provide midwives with the ability to efficiently request consultation and report on women's health issues in the rural areas they service. Midwives were provided with mobile phones containing preloaded applications that allowed them to access necessary medical information, communicate directly with experts at the clinics, and provide data on the medical conditions and issues in remote areas.

Each of these pilots had specific focus and unique challenges. However, the More Eyes project deliberately created overlaps among these pilots in order to generate synergies by capitalizing on the advantages of each.

For example, techniques developed for ConnectJalalabad – broadcast out, SMS in – were applied to the Nangarhar University agricultural pilot. By partnering with SAFA FM, a local not-for-profit radio station, and the Department of Agriculture, Irrigation, & Livestock (DAIL), More Eyes conducted open-ended inquiries of farmers' needs in Nangarhar Province. The radio station aired public service announcements and farmers texted responses via SMS. This created a unique and useful information loop that enabled both agribusiness and DAIL's ability to meet farmer's needs. More Eyes also fostered a sustainable relationship between SAFA FM and Nangarhar University in order to create similar efforts in other regions in Afghanistan.

In a similar example, More Eyes created synergistic overlap by partnering ConnectJalalabad with the medical community in Nangarhar Province. Working with the Department of Health, More Eyes partnered with a radio station to broadcast an announcement asking the public to report any medical symptoms they may be experiencing using SMS. This technique served as another tool in the Disease Early Warning System and will help improve the ability of the Department of Health to quickly react to spreading illnesses before they become epidemics. More Eyes is working with the Ministry of Health to expand this public service nationwide.

In addition to generating crowd-sourced data from these pilots, the More Eyes team identified, accessed and integrated several other sources of white data generated and maintained by a variety of organizations in Afghanistan. These included:

- **Afghan Infrastructure Data Center (AIDC)** – AIDC is a USAID-sponsored database, managed by International Relief and Development, Inc., (IRD) designed to provide

geospatial data on donor-sponsored development projects throughout the country. (<http://www.aidc.af/aidc/index.html>)

- District Stability Framework (DSF) data – DSF is a USAID-developed process elicit information related to stability from the local population.
- AfghanInfo – This database is managed by the Afghan government Central Statistics Organization and provides statistical information about the people and economy of Afghanistan. (<http://www.cso.gov.af/afghaninf.html>)
- The Afghanistan Country Stability Picture (ACSP) – The ACSP project is an initiative led by NATO's International Security Assistance Force (ISAF) to develop and maintain a comprehensive geographic database of reconstruction and development activities across Afghanistan.
- Malomat - Launched by Roshan, in partnership with Mercy Corps and USAID's IDEA-NEW project, Malomat is a national price information system providing farmers, input suppliers, traders and wholesalers with access to commodity information in eleven provincial wholesale markets using a mobile phone, either through Short Message Service (SMS) or Interactive Voice Response (IVR) technology. (http://www.roshan.af/Roshan/Roshan_Community/Work/Communities/Malomat.aspx)
- Provincial Infrastructure Management Support System (PIMSS) - PIMSS provides the Government of the Islamic Republic of Afghanistan (GIROA) with a fully intergraded and GIS-enabled decision support system to strengthen development planning, coordination and decision-making across the full spectrum of Government. (<http://www.pimss.af/AboutPIMSS.html>)

The More Eyes program designed and built a comprehensive data repository that contains all of the crowd-sourced data generated through the pilots, as well as allowing access to the other sources of white data described above. Enabling convenient access to all of this information from one location provides coalition assessors and planners with a valuable and convenient tool for planning development and stability activities. The repository is portable and scalable, allowing users to use it in other theaters with and for different purposes, such as disaster response.

Through the More Eyes program, DARPA developed relationships with several relevant organizations in theater, including, USAID, DIA, multiple GIROA Ministries and local Government organizations. To foster and promote these relationships, DARPA established the DARPA Forward Cell (DFC) at Camp Julien, just outside of Kabul, to facilitate a continuous presence in the theater. The DFC provided DARPA personnel in theater with a robust base of operations, including comms, computing and billeting.

More Eyes Lessons Learned:

The More Eyes team experienced many successes and encountered multiple unplanned difficulties. These lessons learned fall into three general categories: dealing with the Afghan population, dealing with US and Afghan bureaucracies, and dealing with the data.

Each of the pilots required extensive personal interaction with the local Afghans in a culturally sensitive way. Recognizing this early on, DARPA contracted with several American personnel who had significant experience in working directly with the Afghan people on the ground in the Jalalabad area. More Eyes leveraged the existing contacts these personnel had at Nangarhar University and the Jalalabad medical community. Furthermore, their extensive experience in building personal relationships with local Afghans was a key factor in gaining access to telecom operators and radio broadcasters. This lesson learned cannot be overstated:

experienced and culturally savvy personnel were a critical enabler for implementing More Eyes pilots

Successful pilots focused on the incentive to the local population, not the quality or the relevancy of the data to be harvested for stability planning. A pilot must focus first on getting the data to flow – getting the population to participate in any way – using whatever incentives are available. Once there is momentum in data flow, then the messages can be tweaked, if necessary, to elicit more relevant information.

Implementing successful pilots required local institutions to see value and “take ownership” of the process. To build these relationships and engender motivation, it is best to be very generous up front – to give first with no explicit conditions. ConnectJalalabad provides an example in point. The More Eyes team approached the SAFA radio station managers with a focus on their interests – better understanding of listenership, targeted advertising, etc. More Eyes personnel installed servers to collect and process SMS texts at no cost to the station. As a result, the radio station became very motivated to make ConnectJalalabad work and the pilot provided the More Eyes team with access to a very large demographic group that generated a multitude of SMS responses.

Enabling the local population to use mobile and web technologies required special considerations. First, mobile applications must be simple to use and in the local language (Dari or Pashto). Furthermore, depending on the community of interest, many of the local Afghans using the phones to provide crowd-sourced data may be illiterate. In these cases, phone applications with visual interfaces may be needed. This may sound obvious in hindsight, but it was never a trivial issue. The nexus of technical skill and cultural knowledge necessary to do make these pilots work is a rare event.

Security and discretion are also very important when working with the local population. It is important to ensure that any phones provided by the More Eyes program are simple and commonplace in Afghan society – preferably procured locally. Phones that stand out due to their appearance or advanced functionality can be an indicator of collusion with foreigners and can invite threats from local insurgents. Any mobile phones supplied to the local Afghans should be acquired locally and the necessary applications must be simple and fast. Furthermore, phones provided by the More Eyes team should have a simple and quick feature to delete applications and data both locally and remotely. This will maximize user safety should the phone be lost or otherwise compromised.

The hope for More Eyes was that the pilots would grow to a point where the data flows would become self-sustaining. None of the More Eyes pilots reached this tipping point, although some have shown potential to do so. With more time and resources, this is an achievable goal. By their very nature, social networks are dynamic, evolving entities. Even after data flow becomes self-sustaining, operators will still be required to monitor and adjust activity to ensure that it continues to provide useful data.

Web and mobile communications systems limitations in Afghanistan constrained the design and implementation of pilot architectures. At the beginning of the project, the More Eyes team designed pilots based on what they believed to be very capable and ubiquitous web and mobile phone networks. The reality was quite different. The More Eyes team quickly learned that only 4% of the population had access and skills necessary to exploit the internet. Rural populations had even less, which effectively precluded any pilot that required web interaction. Also, the More Eyes team overestimated the capability of mobile services in Afghanistan. Mobile data capability varies from region to region across Afghanistan. Most areas outside of large cities, where most of More Eyes pilots were conducted, had limited telecommunications capability and could only support voice and SMS text communications.

There were several challenges with ingesting, standardizing, and analyzing existing and crowd-sourced data:

- **Sparseness/Uncertainty** – Crowd-sourcing is most viable when there is a broad network of contributors that cover the demographic and geographic range of interest. One of the virtues of crowd-sourcing is that, in an uncertain environment, multiple data points viewed in aggregate will provide a more accurate, more precise picture than any single observation, even if the single observation is from a highly informed and capable source. Multiple data points with overlapping geospatial-temporal coverage allow analysts to develop correlations with high confidence, allowing them to imply and predict local stability conditions. With the possible exception of ConnectJalalabad, none of the pilots generated sufficient data to allow for such a robust analysis. Because of the limited data generated by the More Eyes pilots, analysts would not be able to exploit this capability.
- **Applicability** – Crowd-sourcing generated a lot of unfocused and superfluous data. By its nature, data generated from crowd-sourcing techniques does not necessarily apply directly to a particular information need tied to stability conditions. Thus, while some of the crowd-sourced data relates directly to evaluation of stability conditions, much of it is not directly useful for this purpose.

Stability operations are necessarily a multinational, interagency process. The More Eyes team encountered many obstacles in working among these bureaucratic stovepipes. Convincing these organizations to simply share their existing data was a huge challenge. Even USAID, as one of the ultimate beneficiaries of the More Eyes program, was reluctant to provide the liaison necessary to make More Eyes a success. Nevertheless, it is important to have a consistent team on the ground to interact with relevant organizations, such as GIRoA Ministries, USAID, ISAF, and DIA. The consistent and persistent presence enabled by the DARPA Forward Cell (DFC) was a critical enabler for developing and maintaining engagement with these organizations. These relationships provided the foundation for cooperation not only for More Eyes, but for several other DARPA projects in theater.

Conclusions:

The More Eyes concept was a high risk/high payoff program that resulted in a combination of successes and failures. More Eyes showed that crowd-sourcing is a viable and relatively inexpensive way to acquire unbiased, raw data that can support stability planning. However, it is not a simple or unambiguous capability to implement in the field.

The end-to-end process of conceiving of pilots, developing applications and architectures, and working with local institutions to implement them resulted in many lessons learned. These lessons learned will provide continuity as DARPA transitions the management of the More Eyes program to other organizations.

More Eyes was marginally successful at initiating crowd-sourced data flows through its pilots. The applications and architectures put in place to support the pilots began to bear fruit in the form of collected data. When developing social networks, success depends on a technically skilled and culturally knowledgeable cadre. Technical capability alone was not sufficient to implement these pilots. Furthermore, success requires a persistent presence on the ground to build and maintain the relationships with local institutions. This cannot be done remotely.

The More Eyes pilots did produce some useable data, but they did not achieve the desired volume of data necessary to support stability planners. Although the pilots are on the right track, additional time and resources would be needed to reach this goal.

The More Eyes project successfully created a repository for capturing, storing and integrating white data and a visualization tool useful to stability planners. Although these products were developed for the Afghanistan Theater of Operations, they were designed to be scalable, portable and adaptable for potential use in other theaters for and for operations other than COIN (i.e., Foreign Humanitarian Assistance, consequence management). Given the time and resource constraints for More Eyes, these tools were never exercised or tested outside of Afghanistan.

Recommendations:

- Transition More Eyes to an organization that can logically employ its capabilities. Create an end-to-end demonstration of the More Eyes process, including data generation, capture, integration, processing and display.
- Continue to develop innovative visualization techniques and flexible display tools that align to the needs of stability planners.
- Maintain More Eyes tools and lessons learned for use in another theater. When practical introduce More Eyes capabilities to at least one other type of operation in another region in order to assess scalability, portability and adaptability.

More Eyes Pilot Summaries 30 SEPT 2011

The MoreEyes project consisted of a series of field experimentation in and around Nangarhar Province. The objective was to test various crowdsourcing techniques that could be used in non-conflict areas, and to observe what methods work and what methods don't. Below are summaries of most of the pilots and notes on their execution. Some pilots are omitted to protect privacy and safety of the participants.

A no-cost extension has been granted to the project, and as such some of the pilots are still ongoing or transitioning.

Project: Crowdsourced Mapping

Key Personnel: Todd Huffman (MindTel); Hameed Tasal (Afghan Personnel), Sabawoon Khan (Afghan Personnel), Razi Khan (Afghan Personnel), Zahid Safi (Afghan Personnel), Atiq Jawad (Afghan Personnel), Jul Nabi (Afghan Personnel), Waqib Ullah (Afghan Personnel), Danish Yar (Afghan Personnel)

Endstate: The goal of the Crowdsourced Mapping project is to create a publicly available map of Jalalabad using crowdsourcing techniques.

Overview: A team of Afghan staff and interns from Nangarhar University are using Android phones, COTS GPS units, and web browser interfaces to collect and curate data about roads, road conditions, places of business, points of interest, and other relevant information.

Progress, Constraints and Countermeasures: The map of Jalalabad is relatively complete, and work is shifting into the remote districts. The remote mapping phase of the project is the most interesting and valuable, as these are areas generally denied to foreign staffers. This project lays the groundwork technology and skill sets to perform public participatory mapping projects in the Nangarhar region.

- Progress can be observed on the OpenStreetMap site for Jalalabad:
<http://www.openstreetmap.org/?lat=34.424&lon=70.4603&zoom=13&layers=M>
- Individual contributor edits can be seen at their respective user pages:
<http://www.openstreetmap.org/user/Sabawoon%20khan/edits>
<http://www.openstreetmap.org/user/Razi%20Khan/edits>
<http://www.openstreetmap.org/user/Zahid%20Safi/edits>
<http://www.openstreetmap.org/user/Atiqjawad/edits>
<http://www.openstreetmap.org/user/GUL%20NABI/edits>
<http://www.openstreetmap.org/user/Waqib%20Ullah/edits>
<http://www.openstreetmap.org/user/Danishyar/edits>
<http://www.openstreetmap.org/user/Hameed%20Tasal/edits>

*The team has shifted to mapping the remote districts in Nangarhar.

- For an example see this newly mapped village:
<http://www.openstreetmap.org/?lat=34.256637096405&lon=70.5784463882446&zoom=15>

Project: Social, Cultural, and Political Analysis

Key Personnel: Todd Huffman (MindTel); Una Moore (Consultant); Brian Conley (Consultant)

Endstate: The goal of the Social, Cultural, and Political Analysis project is to contextualize the larger team's efforts into best practices for humanitarian aid and international development. Una Moore and Brian Conley have worked on a variety of USAID and NGO projects, and are performing research in parallel to our implementation efforts and providing social, cultural and political analysis for our team.

Overview: Una and Brian continually review our ongoing projects and upcoming implementations and review them for potential issues which might violate social, cultural, or political boundaries. They perform additional research into specific areas, conducting interviews with various parties involved. They also perform training with our staff on particular topics as requested.

Progress, Constraints and Countermeasures: Una and Brian continue to monitor our projects and provide ongoing advice. In July Una made three trips to Jalalabad (from her home in Kabul) to meet with our staff, review projects, and provide advice and trainings.

Project: Networking Development

Key Personnel: Trevor Ellermann (MindTel), Marti Martinez (Consultant), Noor Ahmadjan (Afghan Staff)

Endstate: The goal of the Networking Development is to support the communications and data needs of our various projects.

Overview: Trevor is the team lead, developing our high-level strategy and implementation. Noor is our Afghan staff member, who has been trained by Trevor in network administration and other tasks. We require a professional systems administrator be available, and Marti Martinez provides support when Trevor is not available.

Progress, Constraints and Countermeasures: Marti was brought on to the team in July to provide coverage when Trevor is unavailable.

Project: Android Communications

Key Personnel: Todd Huffman (MindTel), Cody Daniels (Consultant), Ted Blackman (Consultant)

Endstate: The goal of the Android Communications is to develop experimental communications protocols for Android devices in situations where no network is available.

Overview: Our early Android deployments came back with the feedback that the cellular data networks of Afghanistan were not sufficient to transmit data outside rural areas. We found a need to explore alternative routes, using inexpensive devices. We identified two methods to explore; satellite transmission via SPOT, and data transfer via simplex radio.

Progress, Constraints and Countermeasures: Cody and Ted are developing prototype Android applications which transfer data via a SPOT Connect satellite transmitter, and a separate app which transfers data via simplex radio. An initial prototype with the SPOT Connect has been drafted and is being tested.

Project: Eastern Region Disease Connection (ERDC) SMS Project

Key Personnel: Juan Rodriguez (MindTel); Shabir (Afghan employee); Dr. Aimal (Disease Early Warning System (DEWS), Ministry of Public Health (MoPH))

Background Information: SSF employees began a project with the Disease Early Warning System (DEWS) office in the Nangarhar public hospital. The DEWS director requested a more efficient and timely method for tracking disease outbreaks in order to better contain the spread. SSF employees had several trainings with the DEWS officers and a system was developed to use local radio and SMS to collect, track and display information on disease outbreaks.

Endstate: The goal of ERDC is to create a repository of real-time information on health from eight MoPH doctors throughout Afghanistan's eastern region; Laghman, Nangarhar, Kunar and Nuristan provinces. Ideally the project will evolve into an early warning monitoring and prevention system for disease outbreaks. Local radio stations will cooperate in broadcasting public health messages and questions

relating to disease outbreaks and will air a phone number for listeners to call and report outbreak or symptoms of diseases observed in their villages.

Overview: Every week the participating doctors report on eight specific diseases found in hospitals and clinics via SMS directly to the ISMS modem. SSF local employees transfer the data onto a Crowdmap deployment. All reported information is verified directly with the DEWS officers. Two trainings have been completed on the use of SMS and geo-tagging images taken from smart phones. Because of the stigma placed on diseases in Afghanistan, the Crowdmap deployment is not public, as requested by the DEWS officials. This pilot project had a complete duration of 2 months and was found unsuccessful by the Dr. Aimal, the Regional Director.

Progress, Constraints and Countermeasures: The challenges met in this project were bureaucratic, infrastructural, educational and the doctors high remuneration expectations. The MoPH was originally contacted in an effort to create a real time collection method for disease information in all the eastern region. However, they were concerned the disease information would be released and cause a conflict of interest with their major funders. They also feared the collection would uncover more diseases and create expectations among the public that the MoPH could not support. As a result SSF had to decentralize the project and implement it exclusively with the DEWS director. In regards to the infrastructure, the lack of reliable internet connectivity in the public hospital posed a major challenge for doctors to access the Crowdmap; if they are unable to access the internet, then the information isn't available. It is essential that these doctors always have access to the information because outbreaks constantly need to be monitored. The lack of electricity in the villages made it difficult or impossible for the doctors to charge their smart phones. The low level of education of the doctors was this projects greatest challenge. Training the doctors how to geo-tag real-time information which is a skill that could greatly assist a quick medical was difficult because of their fear of breaking the phone, despite many attempts to explain its simple functionality. At the end the director was interested in creating power point presentations with the maps rather than use them for visualizing understanding and planning. The project was pitched to the DEWS as new method to incorporate basic technology that would allow them to collect and visualize information to help them find the best way to quickly aid their people. It was expected that they would be interested and collaborate for the benefit and success of their work without any remuneration or incentive. On the contrary this project was the most expensive as doctors expected a high remuneration in exchange for their collaboration.

Lessons Learned:

- Flexible and simple technology is essential to a successful project in Afghanistan because of the insecure environment, lack of education and lack of connectivity.
- Immediate visualization of information on maps needs to be prioritized so that beneficiaries do not fall back to more reliable methods of communicating information (a simple telephone call to work partners at headquarters to inform doctors about a cholera outbreak)
- Reliability of technology and communications infrastructure especially in remote areas needs to be implemented for an SMS based project to unfold and be successful.
- Doctors do not have time or a safe environment enough environment to organize and upload information gathered in the field in real time. Another team needs to be formed to do this work for the doctors who can then access and use it to make better procedures, plans, policies and immediate decisions.
- More members of the community (not just doctors) should participate in collecting information from communities on the ground, such as midwives, community workers and nurses.
- A schedule and time table needs to be developed and implemented because without the pressures of a deadline, workers do not act with any sense of urgency.
- Mullah educational workshops for community members and villagers would help to eliminate the fear and stigma of using technology for the benefit of the population.

- This project needs to be supported by the MoPh so that there is a system of checks and balances and the participants are motivated because it is an actual task that is included in their job description. Without the pressure of a leader in power, many participants will not be dedicated to working in the benefit of the project.
- The crowdmap and software needs to be altered to be more appropriate for reporting health related issues. For example, offline access and IVR technology.
- Satellite phones with data plans could be deployed to remote areas because of the lack of connectivity in areas where the most vulnerable populations live.
- Improved Geo-tagging cameras that are easy to use and simple to upload.
- Media and radio need to make regular announcements so that the general population can call in and participate. Incentives need to be provided to those that volunteer information and those that are collecting. This incentive can be educational or material. Solar powered cell phone chargers are a great alternative because they can be used to power the technology and also to create a small business endeavor in remote communities.
- The results of the data need to be shared with the public either via radio or through a phone number provided to the public where they can call to access the information.
- A call-in information center should be set up so that the public can call in and volunteer information to a private and free number. Receptionists will verify information in real-time. This alternative is important so that the project can reach illiterate populations and also populations who fear that an SMS message will make them a target of violence.

***Eastern Region Disease Connection (ERDC) - Cholera**

Throughout the last two months (July and August 2011) there has been a large cholera outbreak in the central region of Afghanistan, SSF tried to map the spread of the disease with the DEWS, but once the project began some officials assured us that the outbreak was controlled. Shortly after however, the outbreak appeared through the central region and has spread to Sarobi in Kabul and eventually to Du Aba Kunar and Wama, Nooristan. After about a month, this outbreak was controlled and then it appeared in Lamatek Darinoor, Nangarhar on the 25th of September.

Summary: In an effort to mitigate the outbreak, SSF carried out a series of meetings with the DEWS and also with its sponsors. Unfortunately, they do not value the significance of mapping the outbreak. All of their information comes from district clinics, so they do not feel the need to pay attention to the village where the outbreak concentrates or another explanation can be that they just do not share that information with each other. For example, there are more than 27 villages in Chapa Dara, where there are a total of 272 cases. It was never clear which villages the cases come from?

Cholera exists because of unsanitary conditions related to water and therefore it is rarely contagious between people so the disease is not spreading from village to village. Cholera appears in villages that have the worst sanitation conditions. The only reason why it is important to know how many people are affected in each village is because this becomes a great indicator as to how good or bad their water and sanitation practices are. I am sure that with all the recent rains and flooding in Nangarhar there is a great possibility that a cholera outbreak will reoccur.

- This is a Google map indicating the location of districts where the Cholera outbreaks occurred: <http://maps.google.com/maps/ms?msid=205230070131197883142.0004ac4fb1cb00346d8a5&msa=0&ll=35.068221,71.05957&spn=1.697178,3.356323>

Project: Ministry of Agriculture, Irrigation and Livestock (MAIL) SMS Project

Key Personnel: Juan Rodriguez (MindTel); Shabir (Afghan employees); Najib Amin (MAIL)

Endstate: The goal of the Agriculture SMS Project is to create a repository of real-time information via SMS from 24 MAIL Extension Officers relating to agriculture in 22 districts in Nanagarhar Province. Daily 16 crop prices, fuel prices, agricultural equipment prices and geo-tagged images of these resources are reported on a crowd map which can then be used to assess factors contributing to instability inside these districts.

Overview: Daily SMS texts from MAIL Extension officers in 22 districts are directly reported onto our SMS webpage. An excel document with this data is then created and uploaded onto a crowd map deployment *NangarharConnect2011* with a geo-tagged location of every district center. All reported information is verified directly with the MAIL officers. Every three months a training takes place with extension officers.

Radio Television Afghanistan (RTA) airs questions related to agriculture 4 times a day during peak listening hours (7pm-9pm) on the quantity of people in a household that are dedicated to farming, amount of farmers willing to seek higher education in agriculture, veterinary or English, the amount of land that is being farmed is for self sustainability or to sell in the local market, the average income of the farmers listening and their location. The radio listeners call in and report information to two local Afghan employees that act as operators in answering, tracking, and recording information that comes in to the respective cell phones. Once this information is collected, the operators will upload the information onto the crowd map deployment. This deployment is public to all interested viewers, including local NGOs, the military, and the Afghans.

Progress, Constraints and Countermeasures: The MAIL was interested in developing a relationship and working on this project mainly because we provided a more simplified, cost effective, safer and efficient way to collect crop prices. The MAIL already had an ongoing project with similar goals but extension officers were collecting prices by recording them on a piece of paper and then commuting from their district offices to Jalalabad each week to submit the paper record to the main office.

Challenges: The greatest challenge in this project has been working with extension officers from insecure remote areas because they are not eager to travel to trainings for security concerns and are more difficult to get a hold of to validate incorrect information. We received information from the extension officer in Sherzad District the first week of the project, but then he was not interested and said participating posed a security threat to him. Apart from this, the local afghan employees have to continuously call and follow up with about half of the participating officers because messages are incorrectly formatted and need to be verified.

The officers have been trained on taking geo-tagged photographs of markets, farms and products that are then published on the crowd map. The ultimate goal of this project is to capture geo-tagged images and reports of agricultural "challenges" and making this information public so that future development projects and stability operations can be better guided.

Project: Border Security RIAB Project

Key Personnel: Rachel Robb, Jenn Gold, and Juan Rodriguez (MindTel); Shabir and Shama (Afghan employees); SFC Jones (25ID/3BCT PSYOPS - RIAB NCOIC)

Endstate: The goal of the Border Security RIAB project is to develop a picture of the border situation in RC-East. N2KL (Nangarhar, Nuristan, Kunar, Laghman) locals have been victim of numerous cross border rocket attacks from Pakistani Taliban and other insurgent groups finding safe haven in Pakistan and the tribal areas along the border. This project will allow those victims to report their stories and for MindTel to map their incidents on a crowdmap deployment.

Overview: The project will be facilitated through the use of multiple RIABs provided by 25ID/3BCT which is currently the battle space owner of RC-East. Of the 12 available RIABs, 8 were chosen due to their

proximity to the Pakistan border. Open-ended questions will be aired via the RIABs twice a day, every day. For example, "what is the security situation in your village," "do you feel safe in your village," "what is the biggest threat to your village," "are you, or a member of your family, a victim of cross border violence," etc. Callers will be asked to identify their location before answering the questions. RIAB operators will broadcast these questions along with a phone number for locals to call in order to report their information. Two local Afghan employees will act as operators in answering, tracking, and recording information that comes in to the respective cell phones. The use of cell phone operators will allow illiterate Afghans to call in and voice their situations, whereas the use of SMS eliminates their participation; leaving out a large percentage of the population. Once this information is collected, the operators will upload the information onto the crowdmap deployment, *OpenSecurityAFGH2011*. This deployment will be made public to all interested viewers, including local NGOs, the military, and the Afghans.

Progress, Constraints and Countermeasures: Gaining the support of the 25ID/3BCT was easy. Information recorded from the RIAB will be directly reported to SFC Jones on a weekly basis and it will be classified into two categories; red and blue information. When callers report information that is considered actionable intelligence, such as information about a pending attack, location of insurgents, or threats of a MASCAL attack, SFC Jones will be contacted immediately. Once the information is reported the military will act on it accordingly and contact their ANSF counterparts. Red information will be identified at the discretion of the MindTel employees. Blue information is any information that is good to know, but not actionable. This information will be reported at the end of the week to SFC Jones. Foreseeable constraints that are likely to hinder this project is the misconception of the use of the RIABs as an intelligence collection tool; callers may fear consequences of reporting their information. Countermeasures that are currently set in place are the reassurance that all phone calls are anonymous and cannot be tracked back to the caller, only MindTel employees will have access to the phone numbers that call in.

Further, if the ANSF learn about the RIAB project, it is likely they will either try to shut the project down, or try to take it over. At this time, MindTel has no future plans of including the ANSF in the RIAB project. The project will officially begin August 10, 2011.

Project: Midwives Connect

Key Personnel: Jenn Gold, Rachel Robb (Mindtel), Shama (Afghan personnel)

Overview: 23 phones were distributed to Kunar midwives in order to track mortality rates of babies and mothers on a daily basis. One local woman, Shama, is responsible for gathering data and organizing it onto a Crowdmap deployment. Shama is also responsible for interviewing each midwife and gathering information regarding the status of their clinic, including: access to water, electricity, security, government support, aid support, road access and latrine availability. SSF will then correlate the mortality rates with the status of the clinics. Information will be compiled and shared through Shama to district municipalities and aid organizations.

- SMS Project is ongoing in Kunar:
<http://kunarmidwives2011.crowdmap.com/main>

Project: UNICEF WASH Pilot

Key Personnel: Juan Rodriguez Rachel Robb Jenn Gold (Mindtel), Shabir (Afghan Personnel)

Overview: Providing training to UNICEF directors based in Jalalabad and six Community Development Councils (CDCs) in two districts of Kunar – Serkani and Khas Kunar – in order to conduct vulnerability assessments. At the moment we would like participants to report every day or at least every other day.

This is still to be addressed and determined.

During the pilot 800 households will be visited by CDC's daily for one month; information on water access, health and sanitation status of each household will be recorded by CDC volunteers through the use of SMS. Information is recorded on a Crowdmap deployment for both districts for the use of UNICEF directors to gain an understanding of the situation at the local levels. In the questionnaire there will be a set of 3 questions the first are the one-time questions:

- Name of village
- # of sanitary latrines per family
- # of families in the vaillage
- # of newly constructed water points and the donors
- # of water points; covered wells, uncovered wells, rivers. pipes
- Everyday questions:
- # of non Functional water points
- # of malnourished children
- Total # of Child Birth
- Total # of child birth with skilled doctor
- # of Child Death
- # of mother death
- # of people with Acute Watery Diarrhea
- On Sept 22nd (After Polio Immunization Day) they will be responsible for:
- # of children that did not get the polio vaccine

UNICEF directors have been trained on the use of SMS and Crowdmap; the CDC volunteers still need training. The pilot project is set to begin October 2011. This information will be used by UNICEF to determine the quality of Water, Sanitation and Hygiene at each village. Reaching populations in Afghanistan is difficult and often dangerous so with this system in place the goal is to mitigate dangers and to receive information in real time.

Challenges: Working with cell phone companies to get a short code has been a long process that might be almost impossible. We hope that UNICEF has a way of getting it faster.

Transition Plan: SSF hopes to assist with the UNICEF SMS pilot reporting project until December 30 2011. After 2011, we are hoping UNICEF will sponsor a complete year of SMS reporting in all the Eastern Region. UNICEF has funding to help people with Water, Health and Sanitation, so this will be a great opportunity to actually help people that are in the villages through our projects.

Project: Solar Power Installations: Nangarhar IRFAN Institute & Khas Kunar Village

Key Personnel: Tuck Miller (Vital Power Systems), Juan Rodriguez Jenn Gold Rachel Robb (Mindtel), Hameed, Shabir (Afghan personnel)

Overview: In Nangarhar, a private English and computer training center was educating over 1200 girls and boys, 7 days a week, for 12 hours a day. The school was spending over 5K a month on fuel costs to run 3 generators. The owners were a family of young men from the Jalalabad area who had opened the school in 2003 in an effort to educate girls who were not enrolled in public school. With the drastic increase of fuel prices over the last year, the school was unable to pay its teachers and had to increase the cost of tuition to students. Consequently many students stopped attending the school, and teachers were threatening to leave in order to find jobs elsewhere. In July of 2010, SSF members met the school owner and started building a relationship with the teachers and students. One year later, Vital Power Systems (VPS) came to Nangarhar and the school was identified as a location for a 3 panel micro-grid solar system to be installed. The panels were set up at the school and the teachers and selected students received training on its installation and use. Now the panels are fully functional and maintained

by the school. The money previously lost on the purchase of fuel is now being used for internet and to hire more teachers that can provide vocational courses for students in a more diverse selection of subjects. The owners of the school are responsible for the solar panels and their maintenance. Local Afghan SSF counterparts have been trained in its use and maintenance in order to provide any necessary technical support to the school.

In Kunar province a village was identified in the Khas Kunar district to install a 6 panel micro-grid system, complete with portable solar lanterns, fans and lighting. The location was identified as a safe and trusted area based on a pre-existing social connection between the SSF and the tribe's Malik from 2010. In July 2011, VPS and SSF entered the village together with installation equipment and provided training to selected engineers identified by the Malik. In 30 minutes the gear was positioned and providing power to households. Solar lanterns were passed out to children to replace their previously used kerosene lanterns. Solar fans were given to the ladies for use while cooking over open flames and propane heaters. A refrigerator was set up to keep water, food, and vaccinations cool for the villagers – a luxury they never experienced before.

The Malik identified several villagers who would be responsible for the solar panels and their maintenance. Local Afghan SSF counterparts have been trained in its use and maintenance in order to provide any technical support to the village.

The installations at these sites validated the following goals:

- Build a solar power system that provides pure sine wave electricity up to 3KW and is capable of continual operation in an austere environment with little or no maintenance.
- System was expandable and additional battery storage and photo-voltaic input can be easily added.
- System can be installed by minimally trained personnel with no prior solar system experience.
- Systematic efficiency will be increased by including lighting and appliances for easy compliance and quick set-up.

Initiative: Civil Engineering Synergy

Key Personnel: Galit Sorokin (MindTel)

Endstate: The overall goal of collaborating with the school of civil engineering is to provide education in architectural and urban planning topics, address local infrastructural issues, while increasing the numbers of GIS trained human resources to be connected to the GIS network already being developed through other More Eyes initiatives.

Overview: The Civil Engineering Synergy initiative seeks to address the significant issues surrounding urban infrastructure in Jalalabad. In June 2011 Galit met with a professor from the Department of Civil Engineering at Nangharhar University as a way to gain an understanding and investigate possible approaches in addressing the topic. Professor Ajmal Stanikzi expressed enthusiasm and interest in infusing the program at the school with the critical thinking and problem solving skills provided through architectural and urban planning education. This would be done through workshops at the school, supported by and organized with the help of the professors.

Topics of awareness education and applicable trainings include:

- GIS Collaboration with professors at the school provides access to students who would benefit from GIS training as GIS systems provide the tools necessary for civil engineers to understand, map, plan and design better human environments on local, urban and regional scales.

- **OpenStreetMap** Trainings provided for the students will include introductions to Open Street Map (crowdsourcing, and another More Eyes ongoing project), and training on how to use the platform.
- **Urban Infrastructure** Aspects of urban systems such as waste and sewage management, resource allocation, water and power, addressed in reference to local issues.
- **Living Environments** Aspects of urban environments such as markets and commerce, social space, public and private concepts as ways to think about human habitation.

More Eyes - Central Region Report

Initiative: Web and GIS Trainings for More Eyes in Afghanistan Central Region Partners

Key Personnel:

Overview: To build the website management and geospatial information systems (GIS) skills of More Eyes' partners in the central region. More Eyes will sponsor geospatial visualization and website management trainings for a group of selected employees of the Shuhada Organization (SO), the oldest and largest local development organization serving central Afghanistan, the Free and Fair Election Foundation (FEFA), Afghanistan's leading domestic election monitoring group, and Bamiyan University. More Eyes will pay the tuition fees for selected trainees to take part in 10-day training at the Kabul office of Afghanistan Information Management Systems (AIMS) in June 2011. Later in the summer, the More Eyes central region coordinator Una Moore will conduct planning workshops with FEFA and the Shuhada Organization to facilitate critical thinking on the part of the partner organizations about what kind of content they should include in their websites and how that content should be displayed and organized (Bamiyan University will not be included in the conceptual workshops because it has a Ministry of Higher Education pre-approved site template). More Eyes will then hire a web developer and designer on a consultancy basis to build skeletal websites for the selected partner organizations and conduct a 10 day website management and design course for the trainees. During this course, the trainees will learn to manage their websites and will begin to fill in content areas.

Status as of September 7, 2011:

- **GIS Training:** In mid June, 4 participants from SO and FEFA completed a 10-day GIS training at AIMS Kabul. One trainee's report from the training is attached. In follow-up conversations with the More Eyes central region coordinator, participants expressed satisfaction with the training and suggested that additional workshops in advanced GIS functions would be useful to them.
Next steps: The central region coordinator will assist GIS trainees and local GIS experts in Kabul and Jalalabad in creating an online network of Afghan GIS specialists for the purposes of sharing information on future training and consultancy opportunities.
- **Website management:** In June, the More Eyes central region coordinator conducted the website workshops with FEFA and SO. Site maps for the new organizational websites were produced during these workshops and those site maps were passed on to the web design consultant who began creating skeletal websites based on the maps. The web design training was postponed from August to September when it was decided by More Eyes staff that asking participants to spend additional hours in the office during the month-long Ramadan fast would be a health hazard. The training was then postponed for a second time after the web design consultant's son fell ill and required surgery in India. The training is now tentatively scheduled for September 24 and will be held at the SO office in Kabul.
Next steps: The website management training will be held in Kabul toward the end of this month and the new organizational websites will be launched in October.

Initiative: Bamiyan University Solar Installation and Web Training

Key Personnel:

Overview: After visiting Bamiyan University in April 2011, More Eyes staff decided to address the root causes of Bamiyan University's ICT challenges: the insufficient supply of electricity to the university and the lack of local ICT expertise. The context was explained in the BU section of the April site visit report.

Where aid went wrong: Every previous donor—including the Dutch organization that *donated a mobile radio station* last year—attempted to scale up the university's ICT facilities without first addressing the 2 barriers to better ICT access, the high cost and insufficient supply of electricity, and the complete absence of local, let alone in-house, ICT expertise. Over and over again, well-meaning donors gifted complex systems and equipment to the university without taking into consideration their recipients' ability to independently maintain the donations.

Consequently, the current situation is that of a rural university with 3 unused computer labs, 3 different power sources, no ability to fix broken equipment and no plan in place for obtaining funds to operate its ICT facilities after December of 2011. The donor approach to Bamiyan University's ICT development has been akin to gifting a racecar to a person who does not know how to drive and cannot pay for gas. But the current situation isn't hopeless, or, it won't be if future interventions begin with addressing the root problems from which all of Bamiyan University's ICT challenges stem.

To solve these problems, More Eyes devised a set of activities to be executed during September and October of 2011:

- To install two solar power systems to provide electricity for 40 internet-connected laptops split between the Bamiyan University women's dormitory and the new Faculty of Education.
- To provide internet access via data modems to computers in every dorm room of the Bamiyan University women's dormitory.
- To train Bamiyan University personnel to maintain and repair the installed equipment.
- To train Bamiyan University personnel and students to use web-based applications for research, mapping, self-reporting and academic projects.

Status as of September 7, 2011:

- In July and August, More Eyes consulted a solar expert and produced a tentative budget for the project. Faculty and administration contact points at BU were informed of this development. Then, in September, More Eyes began collecting price quotes for the solar systems from local green energy firms. At time of writing, at least one suitable firm has been identified. More Eyes is also in the process of developing a detailed budget, timeline and plan for implementing the project.

Next steps: The central region coordinator will prepare the final budget, implementation plan and timeline. These documents will be shared via Google docs with the other members of the team involved in this project. Hameed Tasal will then translate these documents and share them with Bamiyan University contact points, who will coordinate with university administrators to ensure the installation process does not cause a significant interruption in the normal functioning of the university. (More Eyes has been in contact with Bamiyan University tech volunteers and administrators since April 2011 and they are roundly supportive of this initiative and eager to take part in its implementation.) Procurement will be finalized. Then, as soon as possible, More Eyes and a team from the local green energy firm will travel to Bamiyan.

****At time of writing, the remainder of this initiative is expected to encompass the following:***

Procurement: Hameed and Una will manage the procurement of the solar power system and computer equipment.

Data modem setup and software installation: After the laptops and data modems are purchased, Hameed and Una will install the Huawei internet connection software and free antivirus software, Dari script and Dari-English dictionaries on 35 of the laptops. Software on the remaining 5 laptops will be installed by Bamiyan University tech volunteers during training. BU members will be instructed in how to install, update and uninstall the programs without outside assistance.

Transportation and storage of equipment: This aspect of the initiative will be handled entirely by the local alternative energy firm.

Briefing of university administrators: The morning of the first training day, MORE EYES members will brief senior administrators at the university to introduce themselves and reiterate, in person, how the trainings and installation will proceed over the following nine days. Administrators will have the chance to ask frank questions about the initiative in a private setting.

Training: Eight modules will comprise the training component of the Bamiyan University solar upgrade initiative.

Before solar installation (Modules 1-3):

1. Employees of a local alternative energy firm will hold a workshop with the tech volunteers on the basics of solar power systems, covering the names and function of each part of the system.
2. Employees of a local alternative energy firm will hold a workshop on the installation of the solar system.
3. Employees of a local alternative energy firm will hold a workshop on maintenance and troubleshooting for the solar system.

After solar installation (Modules 4-8):

4. Una will hold a workshop for students and tech volunteers on installing free anti-virus software and reducing the risk on infecting computers and storage devices with viruses and other malicious programs.
5. Una will run a workshop for tech volunteers on how to install and use the Huawei software for the Afghan Telecom data modems.
6. Una will run a workshop for residents of the women's dormitory on how to install and use the Huawei software for the Afghan Telecom data modems.
7. Hameed will run a workshop to explain Ushahidi to select university students, tech volunteers, faculty and local NGO employees.
8. Hameed will run a workshop to explain Open Street Map to select university students, tech volunteers, faculty and local NGO employees.
9. Una will run a workshop on online research tools for faculty and select university students.

Installation of solar power systems: This will be conducted by the local alternative energy firm.

Point to point wireless setup: Hameed will train local tech volunteers to set up point to point wireless connections and will set up the point to point connection between the main campus and the new campus buildings on the hill overlooking the city.

Sept 7 -2011

MORE EYES PROJECTS ---- Monthly Progress Report 2

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Title: Networking Development

Key Personnel: Trevor Ellermann (MindTel), Marti Martinez (Consultant), Noor Ahmadjan (Afghan Staff)

Endstate: The goal of the Networking Development is to support the communications and data needs of our various projects.

Overview: Trevor is the team lead, developing our high-level strategy and implementation. Noor is our Afghan staff, who has been trained by Trevor in network administration and other tasks. We require a professional systems administrator be available, and Marti Martinez provides support when Trevor is not available.

Progress, Constraints and Countermeasures: Trevor returns from vacation in about a week, Marti continues to cover the needs in the interim.

Title: Crowdsourced Mapping

Key Personnel: Todd Huffman (MindTel); Hameed Tazal (Afghan Personnel), Sabawoon Khan (Afghan Personnel), Razi Khan (Afghan Personnel), Zahid Safi (Afghan Personnel), Atiq Jawad (Afghan Personnel), Jul Nabi (Afghan Personnel), Waqib Ullah (Afghan Personnel), Danish Yar (Afghan Personnel)

Endstate: The goal of the Crowdsourced Mapping project is to create a publically available map of Jalalabad using crowdsourcing techniques.

Overview: A team of Afghan staff and interns from Nangarhar University are using Android phones, COTS GPS units, and web browser interfaces to collect and curate data about roads, road conditions, places of business, points of interest, and other information.

Progress can be observed on the OpenStreetMap site for Jalalabad:

<http://www.openstreetmap.org/?lat=34.424&lon=70.4603&zoom=13&layers=M>

Individual contributor edits can be seen at their respective user pages:

<http://www.openstreetmap.org/user/Sabawoon%20khan/edits>

<http://www.openstreetmap.org/user/Razi%20Khan/edits>

<http://www.openstreetmap.org/user/Zahid%20Safi/edits>

<http://www.openstreetmap.org/user/Atiqjawad/edits>

<http://www.openstreetmap.org/user/GUL%20NABI/edits>

<http://www.openstreetmap.org/user/Waqib%20Ullah/edits>

<http://www.openstreetmap.org/user/Danishyar/edits>

<http://www.openstreetmap.org/user/Hameed%20Tasal/edits>

Progress, Constraints and Countermeasures:

The team has shifted to mapping the remote districts in Nangarhar. For an example see this newly mapped village.

<http://www.openstreetmap.org/?lat=34.256637096405&lon=70.5784463882446&zoom=15>

Title: Android Communications

Key Personnel: Todd Huffman (MindTel), Cody Daniels (Consultant), Ted Blackman (Consultant)

Endstate: The goal of the Android Communications is to develop experimental communications protocols for Android devices in situations where no network is available.

Overview: Our early Android deployments came back with the feedback that the cellular data networks of Afghanistan were not sufficient to transmit data outside rural areas. We identified a need to explore alternative routes, using inexpensive devices.

We identified two methods to explore, satellite transmission via SPOT, and data transfer via simplex radio.

Progress, Constraints and Countermeasures: Cody and Ted are developing prototype Android applications which transfer data via a SPOT Connect satellite transmitter, and a separate app which transfers data via simplex radio.

An initial prototype with the SPOT Connect has been drafted and is being tested.

Title: Social, Cultural, and Political Analysis

Key Personnel: Todd Huffman (MindTel); Una Moore (Consultant), Brian Conley (Consultant)

Endstate: The goal of the Social, Cultural, and Political Analysis project is to contextualize the larger team's efforts into best practices for humanitarian aid and international development. Una Moore and Brian Conley have worked on a variety of USAID and NGO projects, and is performing research in parallel to our implementation efforts and providing social, cultural and political analysis for our team.

Overview: Una and Brian continually review our ongoing projects and upcoming implementations and reviews them for potential issues which might violate social, cultural, or political boundaries. They perform additional research into specific areas, conducting interviews with various parties involved. They also perform training with our staff on particular topics as requested.

Progress, Constraints and Countermeasures: Una and Brian continue to monitor our projects and provide ongoing advice.

Title: SMS Infrastructure

Key Personnel: Todd Huffman (MindTel); Trevor Ellermann, Marti Martinez

Endstate: The goal of the SMS Infrastructure components is to eliminate the need for the SMS infrastructure currently being hosted at the Taj guest house.

Overview: Trevor and Marti are working with Paywast to develop an API for sending and receiving SMS messages through the Paywast infrastructure.

Progress, Constraints and Countermeasures: The API is complete at a draft level, and testing has begun.

SSF More-Eyes Project Updates as of September 2011

Nangarhar Connect: SSF administered phones and trained Ministry of Agriculture, Irrigation and Livestock extension officers in 22 districts of Nangarhar Province. Each extension officer reports the market prices of 16 different products including crops, fuel, labor, equipment, imports and exports on a daily basis.

Over 2,000 SMS have been collected and published on a Crowdmap deployment

(<http://nangarharconnect2011.crowdmap.com>) Radio Television Afghanistan (RTA) is currently airing agriculture related questions to collect the needs and challenges of farming communities throughout Nangarhar.

Currently two local Afghan males (Engineer Shwab and Project Manager Shabir) are responsible for organizing and recording incoming messages from extension officers and displaying the information on Crowdmap. The director of the MAIL has received training on SMS and crowdmap and with support of Eng. Shwab and Manager Shabir, is able to take over the program without the oversight of SSF.

Challenges:

The biggest challenge to this project is security, from the most unsecure districts we have received very little or no prices at all. Sherzad district is the district where we have received the least amount of messages, only one sms in the whole project. There are other districts that share the same problem.

Transition Plan:

As of Sept 6 2011, The MAIL is presenting our project to the headquarters in Kabul where they will hopefully be interested in taking over and applying our same reporting method to the entire Eastern region and/or the entire country.

The MAIL and the ADT team are planning on starting an Agricultural Yield project about the amount and type of produce that each village can yield in the province of Nangarhar. SSF plans on collaborating with them so that they can begin to use our system to report and record all the information from each village. SSF will also want to map it.

Eastern Region Disease Connection (ERDC): SSF distributed 8 phones to select doctors and focal points in N2KL in order to track symptoms of cough and cold, pneumonia, diarrhea, dehydration, measles, malaria, and typhoid in 5 year old children. Original pilot involved MoPH, but current pilot involves district level doctors only. Over 400 SMS reports uploaded to a private Ushahidi map.

Transition: DEWS Director Dr. Aimal was trained extensively on Ushahidi and SMS and he has completed the pilot project. At this moment, Dr. Aimal is uninterested in adopting the project. SSF believes the mapping does not help the DEWS program with funding or publicity which we have found to be its principal concern.

Cholera: Throughout the last two months (July and August 2011) there has been a large cholera outbreak in the central region of Afghanistan, SSF tried to map the spread of the disease with the DEWS, but once the project began some officials assured us that the outbreak was controlled. Shortly after however, the outbreak appeared through the central region and has spread to Sarobi in Kabul and eventually to Du Aba Kunar and Wama, Nooristan. After about a month, this outbreak was controlled and then it appeared in Lamatek Darinoor, Nangarhar on the 25th of September. Summary:

In an effort to mitigate the outbreak, SSF carried out a series of meetings with the DEWS and also with its sponsors. Unfortunately, they do not value the significance of mapping the outbreak. All of their information comes from district clinics, so they do not feel the need to pay attention to the village where the outbreak concentrates or another explanation can be that they just do not share that information with each other. For example, there are more than 27 villages in Chapa dara, where there is a total of 272 cases. It was never clear which villages the cases come from? Cholera exists because of unsanitary conditions related to water and therefore it is rarely contagious between people so the disease is not spreading from village to village. Cholera appears in villages that have the worst sanitation conditions. The only reason why it is important to know how many people are affected in each village is because this becomes a great indicator as to how good or bad their water and sanitation practices are. I am sure that with all the recent rains and flooding in Nangarhar there is a great possibility that a cholera outbreak will reoccur.

This is a Google map indicating the location of the districts where the Cholera outbreaks occurred:

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SMS Project is ongoing in Kunar: <http://kunar.midwives2011.crowdmap.com/main>

UNICEF WASH Pilot: Training to UNICEF directors based in Jalalabad and six Community Development Councils (CDCs) in two districts of Kunar – Serkani and Khas Kunar – in order to conduct vulnerability assessments. At the moment we would like participants to report every day or at least every other

day. This is still to be addressed and determined.

During the pilot 800 households will be visited by CDC's daily for one month; information on water access, health and sanitation status of each household will be recorded by CDC volunteers through the use of SMS. Information is recorded on a Crowdmap deployment for both districts for the use of UNICEF directors to gain an understanding of the situation at the local levels. In the questionnaire there will be a set of 3 questions the first are the one-time questions:

Name of village

of sanitary latrines per family

of families in the village

of newly constructed water points and the donors

of water points; covered wells, uncovered wells, rivers, pipes

Everyday questions:

of non Functional water points

of malnourished children

Total # of Child Birth

Total # of child birth with skilled doctor

of Child Death

of mother death

of people with Acute Watery Diarrhea

On Sept 22nd (After Polio Immunization Day) they will be responsible for:

of children that did not get the polio vaccine

UNICEF directors have been trained on the use of SMS and Crowdmap; the CDC volunteers still need training. The pilot project to begin October 2011.

This information will be used by UNICEF to determine the quality of Water, Sanitation and Hygiene at each village. As we all know reaching populations in Afghanistan is dangerous so with this system in place the goal is to mitigate dangers and to receive information in real time.

Challenges: Working with cell phone companies to get a short code has been a long process that might be almost impossible. We hope that UNICEF has a way of getting it faster.

Transition Plan: SSF hopes to assist with the UNICEF SMS pilot reporting project until December 30 2011. After 2011, we are hoping UNICEF will sponsor a complete year of SMS reporting in all the Eastern Region. UNICEF has funding to help people with Water, Health and Sanitation, so this will be a great opportunity to actually help people that are in the villages through our projects.

Solar Power Installations: Nangarhar IRFAN Institute & Khas Kunar Village: In Nangarhar a private English and computer training center was educating over 1200 girls and boys, 7 days a week, for 12 hours a day. The school was spending over 5K a month on fuel costs to run 3 generators. The owners were a family of young men from the Jalalabad area who had opened the school in 2003 in an effort to educate girls who were not enrolled in public school. With the drastic increase of fuel prices over the last year, the school was unable to pay its teachers and had to increase the cost of tuition to students. Consequently many students stopped attending the school, and teachers were threatening to leave in order to find jobs elsewhere. In July of 2010, SSF members met the school owner and started building a relationship with the teachers and students. One year later, Vital Power Systems (VPS) came to Nangarhar and the school was identified as a location for a 3 panel micro-grid solar system to be installed. The panels were set up at the school and the teachers and selected students received training on its

installation and use. Now the panels are fully functional and maintained by the school. The money previously lost on the purchase of fuel is now being used for internet and to hire more teachers that can provide vocational courses for students in a more diverse selection of subjects.

The owners of the school are responsible for the solar panels and their maintenance. Local Afghan SSF counterparts have been trained in its use and maintenance in order to provide any necessary technical support to the school.

In Kunar province a village was identified in the Khas Kunar district to install a 6 panel micro-grid system, complete with portable solar lanterns, fans and lighting. The location was identified as a safe and trusted area based on a pre-existing social connection between the SSF and the tribe's Malik from 2010. In July 2011, VPS and SSF entered the village together with installation equipment and provided training to selected engineers identified by the Malik. In 30 minutes the gear was positioned and providing power to households. Solar lanterns were passed out to children to replace their previously used kerosene lanterns. Solar fans were given to the ladies for use while cooking over open flames and propane heaters. A refrigerator was set up to keep water, food, and vaccinations cool for the villagers – a luxury they never experienced before.

The Malik identified several villagers who would be responsible for the solar panels and their maintenance. Local Afghan SSF counterparts have been trained in its use and maintenance in order to provide any technical support to the village.

The installations at these sites validated the following goals:

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- Build a solar power system that provides pure sine wave electricity up to 3KW and is capable of continual operation in an austere environment with little or no maintenance.
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- System was expandable and additional battery storage and photo-voltaic input can be easily added.
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- System can be installed by minimally trained personnel with no prior solar system experience.
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- Systematic efficiency will be increased by including lighting and appliances for easy compliance and quick set-up.

More Eyes Central Region September Report

Initiative #1: Web and GIS Trainings for More Eyes in Afghanistan Central Region

Partners

Overview: To build the website management and geospatial information systems (GIS) skills of More Eyes' partners in the central region More Eyes will sponsor geospatial visualization and website management trainings for a group of selected employees of the Shuhada Organization (SO), the oldest and largest local development organization serving central Afghanistan, the Free and Fair Election Foundation (FEFA), Afghanistan's leading domestic election monitoring group, and Bamiyan University.

More Eyes will pay the tuition fees for selected trainees to take part in 10-day training at the Kabul office of Afghanistan Information Management Systems (AIMS) in June 2011. Later in the summer, the More Eyes central region coordinator Una Moore will conduct planning workshops with FEFA and the Shuhada Organization to facilitate critical thinking on the part of the partner organizations about what kind of content they should include in their websites and how that content should be displayed and organized. (Bamiyan University will not be included in the conceptual workshops because it has a Ministry of Higher Education pre-approved site template.)

More Eyes will then hire a web developer and designer on a consultancy basis to build skeletal websites for the selected partner organizations and conduct a 10 day website management and design course for the trainees. During this course, the trainees will learn to manage their websites and will begin to fill in content areas.

Status as of September 7, 2011:

GIS Training: In mid June, 4 participants from SO and FEFA completed a 10-day GIS training at AIMS Kabul. One trainee's report from the training is attached. In follow-up conversations with the More Eyes central region coordinator, participants expressed satisfaction with the training and suggested that additional workshops in advanced GIS functions would be useful to them.

Next steps: The central region coordinator will assist GIS trainees and local GIS experts in Kabul and Jalalabad in creating an online network of Afghan GIS specialists for the purposes of sharing information on future training and consultancy opportunities.

Website management: In June, the More Eyes central region coordinator conducted the website workshops with FEFA and SO. Site maps for the new organizational websites were produced during these workshops and those site maps were passed on to the web design consultant who began creating skeletal websites based on the maps. The web design training was postponed from August to September when it was decided by More Eyes staff that asking participants to spend additional hours in the office during the month-long Ramadan fast would be a health hazard. The training was then postponed for a second time after the web design consultant's son fell ill and required surgery in India. The training is now tentatively scheduled for September 24 and will be held at the SO office in Kabul.

Next steps: The website management training will be held in Kabul toward the end of this month and the new organizational websites will be launched in October.

Initiative #2: Bamiyan University Solar Installation and Web Training

Overview: After visiting Bamiyan University in April 2011, More Eyes staff decided to address the root causes of Bamiyan University's ICT challenges: the insufficient supply of electricity to the university and the lack of local ICT expertise.

The context was explained the BU section of the April site visit report:

Where aid went wrong: Every previous donor –including the Dutch organization that *donated a mobile radio station* last year– attempted to scale up the university's ICT facilities without first addressing the 2 barriers to better ICT access, the high cost and insufficient supply of electricity, and the complete absence of local, let alone in-house, ICT expertise. Over and over again, well-meaning donors gifted complex systems and equipment to the university without taking into consideration their recipients' ability to independently maintain the donations.

Consequently, the current situation is that of a rural university with 3 unused computer labs, 3 different power sources, no ability to fix broken equipment and no plan in place for obtaining funds to operate its ICT facilities after December of 2011. The donor approach to Bamiyan University's ICT development has been akin to gifting a racecar to a person who does not know how to drive and cannot pay for gas. But the current situation isn't hopeless, or, it won't be if future interventions begin with addressing the root problems from which all of Bamiyan University's ICT challenges stem.

To solve these problems, More Eyes devised a set of activities to be executed during September and October of 2011.

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- To install two solar power systems to provide electricity for 40 internet-connected laptops split between the Bamiyan University women's dormitory and the new Faculty of Education building.
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- To provide internet access via data modems to computers in every dorm room of the Bamiyan University women's dormitory.
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- To train Bamiyan University personnel to maintain and repair the installed equipment.
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- To train Bamiyan University personnel and students to use web-based applications for research, mapping, self-reporting and academic projects.

Status as of September 7, 2011.

In July and August, More Eyes consulted a solar expert and produced a tentative budget for the project. Faculty and administration contact points at BU were informed of this development. Then, in September, More Eyes began collecting price quotes for the solar systems from local green energy firms. At time of writing, at least one suitable firm has been identified. More Eyes is also in the process of developing a detailed budget, timeline and plan for implementing the project.

Next steps: The central region coordinator will prepare the final budget, implementation plan and timeline. These documents will be shared via Google docs with the other members of the team involved in this project. Hameed Tasal will then translate these documents and share them with Bamiyan University contact points, who will coordinate with university administrators to ensure the installation process does not cause a significant interruption in the normal functioning of the university. (More Eyes has been in contact with Bamiyan University tech volunteers and administrators since April 2011 and they are roundly supportive of this initiative and eager to take part in its implementation.) Procurement will be finalized. Then, as soon as possible, More Eyes and a team from the local green energy firm will travel to Bamiyan.

At time of writing, the remainder of this initiative is expected to encompass the following:

Procurement: Hameed and Una will manage the procurement of the solar power system and computer equipment.

Data modem setup and software installation: After the laptops and data modems are

purchased, Hameed and Una will install the Huawei internet connection software and free anti-virus software, Dari script and Dari-English dictionaries on 35 of the laptops. Software on the remaining 5 laptops will be installed by Bamiyan University tech volunteers during training. BU members will be instructed in how to install, update and uninstall the programs without outside assistance.

Transportation and storage of equipment: This aspect of the initiative will be handled entirely by the local alternative energy firm.

Briefing of university administrators: The morning of the first training day, MORE EYES members will brief senior administrators at the university to introduce themselves and reiterate, in person, how the trainings and installation will proceed over the following nine days.

Administrators will have the chance to ask frank questions about the initiative in a private setting.

Training: Eight modules will comprise the training component of the Bamiyan University solar upgrade initiative.

Before solar installation

Module 1) Employees of a local alternative energy firm will hold a workshop with the tech volunteers on the basics of solar power systems, covering the names and functions of each part of the system.

Module 2) Employees of a local alternative energy firm will hold a workshop on the installation of the solar system.

Module 3) Employees of a local alternative energy firm will hold a workshop on maintenance and troubleshooting for the solar system.

After solar installation

Module 4) Una will hold a workshop for students and tech volunteers on installing free anti-virus software and reducing the risk on infecting computers and storage devices with viruses and other malicious programs.

Module 5) Una will run a workshop for tech volunteers on how to install and use the Huawei software for the Afghan Telecom data modems.

Module 6) Una will run a workshop for residents of the women's dormitory on how to install and use the Huawei software for the Afghan Telecom data modems.

Module 7) Hameed will run a workshop to explain Ushahidi to select university students, tech volunteers, faculty and local NGO employees.

Module 8) Hameed will run a workshop to explain Open Street Map to select university students, tech volunteers, faculty and local NGO employees.

Module 9) Una will run a workshop on online research tools for faculty and select university students.

Installation of solar power systems

This will be conducted by the local alternative energy firm.

Point to point wireless setup

Hameed will train local tech volunteers to set up point to point wireless connections and will set up the point to point connection between the main campus and the new campus buildings on the hill overlooking the city.