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ICT Update

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http://ictupdate.cta.int

Low-cost internet and phone calls for IDP camps in northern **Uganda**

Radio helps to reconcile communities after the genocide in **Rwanda**

Internet campaigns highlight the continuing conflict in **Darfur**

Peacebuilding

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ICT Update

ICT Update issue 43, June 2008. *ICT Update* is a bimonthly printed bulletin with an accompanying web magazine (http://ictupdate.cta.int) and email newsletter. Each issue of *ICT Update* focuses on a specific theme relevant to ICTs for agricultural and rural development in African, Caribbean and Pacific (ACP) countries, and includes feature articles and annotated links to related web resources and projects. The next issue will be available in June

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http://ictupdate.cta.int

Mixed Sources

Voices through the violence

According to the United States Institute of Peace, there are around 100 conflict situations in the world today. This armed violence not only kills thousands of people every year but many more are forced to leave their homes, are permanently disabled or severely affected by trauma. The infrastructure of countries hit by war is often so badly damaged that it takes years to rebuild. Broken road and rail systems leave rural areas cut off from the main administration centres and limit distribution of agricultural products. Clean water, electricity and telecommunications services are often beyond the reach of those outside the urban centres.

Communities can use technology to influence the work of relief organizations operating in their area.

With rural areas in conflict zones lacking even the most basic services why should introducing ICTs be important? For the team at BOSCO Uganda the answer is very simple: give people the chance to communicate and you give them the chance to ask for the things they need. Communities can determine their own priorities and use technology to influence the work of international relief organizations operating in their area.

BOSCO Uganda developed a long-range wireless internet and telephone network to cover seven IDP (internally displaced persons) camps in northern Uganda. Communities within the camps have already developed proposals to attract funding for farming and education projects. But BOSCO also designed the system with a long-term outlook, making a network that could be easily extended to cover the towns and villages in the region when peace returns.

Another advantage of the BOSCO network is that it requires very little electricity. Communications systems with low energy demands are very important in times of conflict when electricity supplies are damaged. For this reason radio remains an important medium in emergency situations. During the genocide in Rwanda, for example, many people fled their homes taking only some food and their radio. Regular broadcasts kept them in touch with what was happening in the rest of the country. Radio, however, was also used to incite hatred at the time of the violence. In fact, two executives of the station RTLM, *Radio Télévision Libre des Milles Collines,* have since been found guilty of genocide by the UN International Criminal Tribunal for Rwanda.

But radio is now promoting a more positive message in the country. The organization, Radio La Benevlolencija, works with psychologists specialized in the causes of genocide and reconciliation to produce programmes to help Rwandans overcome the trauma incurred during the violence.

Human rights organizations blamed the international community for ignoring the murders in Rwanda. Those same organizations are now determined that the conflict in Darfur is not forgotten. While mainstream media is worried that constant reports from the region would cause audiences to switch off, human rights activists use internet and web 2.0 applications to maintain focus on the situation in Darfur. Amnesty International and the United States Holocaust Memorial Museum use regularly updated satellite images to show the destruction in Darfurian towns and villages. Other activists produce online games, blogs, podcasts, mashups, video reports and use social networks to engage a broad range of audiences and alert them to the violence in this part of western Sudan.

Much of this technology was not available during the 1994 Rwandan genocide. Web 2.0 applications, in particular, now play an increasingly important role in providing valuable information in conflict situations. It is often rural areas that are cut off first after war breaks out, and the last to be reconnected when peace returns. Connecting rural communities in times of conflict gives them more say in the type of assisstance they need when they need it most. And, with more opportunities to contact the wider world, the more chance they have of finding someone who will listen. ■

DEMOCRATIC VOICE OF BURMA / ANP

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Bringing peace to life

Using technology for peacebuilding is not a new concept. Examples exist from as early as the Magna Carta and the Bill of Rights to the art of resistance in South Africa during apartheid. More recent examples include the hurling of burning pigs at the offices of a French politician, Jean-Marie Le Pen, in the virtual world of Second Life, and the use of mobile phones to help bring down repressive regimes in the Philippines. There are many stories of technology helping to emancipate people by enabling them to communicate with each other.

In 2003, together with three others, I decided to try to use ICT to transform the social, political and economic relations in communities experiencing violence. The four of us are all Sri Lankan, born after hostilities broke out between the government and the Liberation of Tamil Tigers Eelam (LTTE). This was an advantage for us, because we were able to quickly identify precisely which ICTs are useful in a country at war.

We set up an organization called InfoShare. We use everything from internet and web 2.0 technologies to mobile phones and geographic mapping tools. We develop peacebuilding solutions that can be easily adapted, that operate in the vernacular as well as in English, that can be run on any PC and any operating system and that don't always require broadband or internet connectivity. Mindful that civil society itself needs to transform along with government, we use ICTs to make the peace and development processes transparent and make those involved more accountable. Simply put, we aim to be as annoying as possible to those who promote repression, censorship and crimes against humanity.

DEMOCRATIC VOICE OF BURMA / ANP

With all this conflict around me, I am often asked why I stay in Sri Lanka and if I can make any real difference. News reports suggest a great deal of violence in the country. However, global news media that feed off events such as a suicide bomb, a victory, a defeat, a death or a defection fail to recognize the complex nature of peacemaking. There is the potential for peace in even the worst conflicts. The impact of *Groundviews*, an award winning citizen journalism website, suggests that stories produced by ordinary citizens can be powerful catalysts for change. Without ICTs, these narratives would not exist or be stored for posterity and would not make it onto the radar of local and global media.

Optimism

ICTs can deeply complement real-world processes that support peacebuilding, non-violent dissent and democracy. The powerful images of a single person standing before a tank in Tiananmen Square and monks silently marching against repression in Myanmar haunt and inspire us today because the spread of information and knowledge can no longer be easily blocked by repressive regimes. A single provocative photo from a mobile phone is enough to bring down a tyrant, a dictatorship or a government uninterested in democracy.

So why do I stay in Sri Lanka? I have to say there is no easy answer. Perhaps it is because it is, and always will be, my home. Perhaps it is because I want my son, who is now 15 months old, to look back at this bloody time and know that those of us who could have made a difference did not cower in the face of growing intimidation and violence. Perhaps it is because it is precisely when there is so much violence that ICTs can be most effective in promoting democracy and peace. Or maybe it is because the Fourth Estate – the traditional print and electronic media – are themselves emaciated and under attack, leaving citizens with little in the way of impartial, accurate and responsible information.

Peacebuilders everywhere are convinced that a better world is possible. They are devoted to that dream and can imagine peace, unlike so many others around them. There is no single epiphany that shows them the way to peace, or what to do to strengthen and sustain it. Many peacebuilders are killed or, through fear for their own lives, are forced to leave their country. ICTs help address and transcend some of these limitations by generating, recording and amplifying ideas and actions regardless of their geographical location. Using technology, peacebuilders can write for posterity. They collect vital information using mobile phones. They create virtual communities to support and raise funds, and they appeal via the internet for help from governments and citizens of other countries to support their work.

ICTs will only become more integral to peacebuilding and conflict transformation in the years to come. I know this to be true because I have seen what technology can do in my own country to help keep alive the idea of democracy and peace when so little of it really exists. This is why I will not leave Sri Lanka. That may sound foolish to some people but I think all peacebuilders are fools at times. Some, though, are lucky enough to be proven right in their lifetimes. I just hope I get lucky too. ■

Feature

Window to the world

The war in northern Uganda has driven thousands of people from their homes to live in camps. Now, after a lot of trial an error, BOSCO Uganda has brought the internet and low-cost phone calls to the camps, giving the people a chance to tell their own story.

When an old friend of mine returned from Uganda and told me about the conflict in the north of the country, I have to say, I only paid scant attention. I was well-educated and an avid news junkie, but I couldn't identify with anything he was telling me. The rebels, the Lord's Resistance Army (LRA), were fighting a classic insurgency which defied military solution. Local people in the area, the Acholi, were living in government camps, mainly to prevent their children being taken in the night to fight for the LRA. But the camps had very few supplies. The UN and other organizations supplied the basic needs of food and shelter, but could do little else.

My friend, Gus Zuehlke, travelled to Uganda in the spring of 2006. Against the strenuous objections of his hosts who were concerned for his safety, he went to the northern town of Gulu and visited the Pagak camp for internally displaced persons (IDPs) in the heart of the war zone. The elders, from the local Acholi people, living in the camp told him that they wanted the world to know what was going on in their homeland. But they weren't able to get the story out themselves as they had no means to communicate with journalists either in their own country or abroad.

Their courage and determination inspired Gus to tell their story when he returned to the United States. His own enthusiasm stirred many people who then offered to help. I had previously worked with Gus and got involved when he asked me if using satellite phones would help the Acholi get their story out. I looked into it, but quickly saw that such a system would be prohibitively expensive. We needed a more affordable solution that would work in the difficult local conditions. Before long, I began researching and designing a project to help connect the people living in the camps with the wider world. The cease-fire agreement reached in July 2006 gave us an opportunity to install a system, but it also fuelled our sense of urgency in case fighting broke out again.

Ideas

Cellular phone services in northern Uganda are erratic, unreliable and very expensive. Most northerners cannot afford even a long-distance call inside the country. Using mobile phones would therefore not be an option. I looked into the possibility of sending up balloons mounted with Wi-Fi routers to provide a cellular service and internet access. At a certain altitude the balloons jettison their hardware, which then float to the ground with parachutes. The system had worked successfully in the USA, but in northern Uganda the rough terrain, ongoing hostilities, worries about wildlife and the harsh climate meant that recovering the equipment later would too difficult, dangerous and too expensive to be practical.

We briefly considered using low-cost plastic laptops and generators, but these were either unavailable or too expensive. After some time, we realized that the best solution would be a rather typical Wi-Fi local area network (WLAN), but we would still have to adapt it to Uganda's unreliable and often unavailable power supplies. And again, the cost of modifying the WLAN would be well beyond our reach.

Eventually, we saw that to be considered worthwhile, any solution would have to serve all five of the following functions:

- provide internal emergency communications – between the IDP camps and the rest of Uganda;
- provide external emergency communications – between foreign and Ugandan officials and technical personnel;
- provide educational opportunities through the internet and in schools;
- enable the people in the camps to speak for themselves, and do their own advocacy campaigns via the internet; and
- allow users to use images, video and voice to focus the attention of the international media on the plight of what, until now, has been an invisible tragedy.

Of these, we regarded the last point as the most crucial because, without international recognition of the problem, no solution would be truly beneficial to the people affected by the war.

Durability

In the end, we decided to call our project Battery Operated Systems for Community Outreach, or BOSCO. In March 2007, a group of us travelled to northern Uganda to install an internet service for the residents of the IDP camps. The team consisted of myself, Gus, a technical consultant, and technicians from Inveneo, an organization that specializes in supplying communications equipment to rural areas in developing countries, and who also has experience working in Uganda. Together, we set up a local area network using long-range Wi-Fi networking devices, ultra low-power computers and a VoIP (voice over internet protocol) telephone system. The network is powered by solar panels which charge a system of batteries. The lack of reliable electricity supplies in the area meant that an alternative power source was necessary.

We used the existing infrastructure provided by the church that serves the seven IDP camps, as they had buildings and offices in each camp

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The BOSCO network in Pagak IDP camp. Two long-range Wi-Fi connections can relay a unidirectional signal up to 120 km. One receives the signal, the other relays it to the next location.

which gave us the security we needed for the equipment. Two archdiocesan offices in the town of Gulu are connected to the internet via satellite and from there the long-distance Wi-Fi transmitters carry the internet signal out to the IDP camps, the furthest of which is 70 kilometres away. The system uses very little power (only 12 volts) which vastly reduces the amount of expensive solar power needed. Serving the seven camps is seen as a pilot stage of the project. The system has been designed to so that it can be easily extended to reach the Acholi villages once people return after the war.

The components of the network are resistant to heat, humidity and dust, which means they can still operate in harsh environments. The system is easy to use, both for users and administrators who are new to technology. Such simplicity allows our team, headed by our local administrators, Philipp Glaser and Stefan Bock, to serve the IDP camps more efficiently and provides them with the means to communicate immediately both with other offices in the camps and with funding organizations in the United States and Europe.

Elementary

We have approximately 30 desktop computers in the network. They are situated in church facilities in the IDP camps at Pabbo, Pagak, Coope, Unyama, Lacor, Jen'Geri and at our hub site in the compound of Caritas, the relief organization, in Gulu. We also supply the network infrastructure and internet access to link up other computers already in use throughout the region, including those in the offices of the Archbishop of Gulu.

These computers lack fancy applications. They cannot play DVDs or 3D games. But they have colour screens, flash memory, can run Microsoft Office applications, and users can explore the web via the broadband link to Gulu. Each computer uses 6–8 watts of power, very low when compared with the 100 watts used by the average computer. The VoIP phone service has been set up with a United States area code, so that international calls are charged at the cheaper US rate. Calls from site to site within Uganda are free as they operate on a separate server and are treated as internal calls. The VoIP provider, VoX Communications, based in Florida, decided to help the project by providing their services at a reduced rate.

The network is flexible and expandable, and is extremely low cost due to the use of 12 volt DC equipment, which uses power over ethernet (PoE) technology. This technology supplies power and data to remote devices in a network via standard, inexpensive cables. Thus the routers, VoIP telephones and even computers don't need their own separate power supply, reducing the power usage of the whole system and, therefore, a major part of the operating costs.

Related links

The BOSCO Uganda Relief Project
➜ www.bosco-uganda.org

BOSCO Wiki
➜ http://bosco-uganda.wikispaces.com/Pagak

VoX Communications
➜ www.voxcorp.net

Inveneo
➜ www.inveneo.org

We believe the project has the potential to provide a communications system that can transform daily activities in the camps, where previously there were few phones and no power. This first phase of the project now connects eight church offices, two clinics and 17 schools within the camps. The network is available for all types of communication needs, including logistics, teacher training, consultations between clinics and doctors, communicating with US and European donors, and getting out critical information on the LRA's human rights violations.

With further donations, the existing installation will be extended in two additional phases. The full system will serve approximately 1 million displaced people in a region covering around one third of Uganda. This area extends well beyond the current camps, so as peace spreads across the north of the country, the people there will continue to benefit from the communications and information exchange. We plan to extend the project to 60 of the 104 IDP camps in northern Uganda within the next three years. Once the conflict ends and the people are able to return to their homes, these 60 camps will revert to their original functions as cultural or trading centres.

Unique

Some people might ask: why provide internet services when those in the camps have a greater need for a well? The answer, says Gus Zuehlke, is that if you've got internet access you can ask for a well. There are some other obvious benefits too. The people living in the IDP camps now have a communications system that will work in emergency situations, plus they have the chance to contact international humanitarian organizations and the media to inform them of their plight.

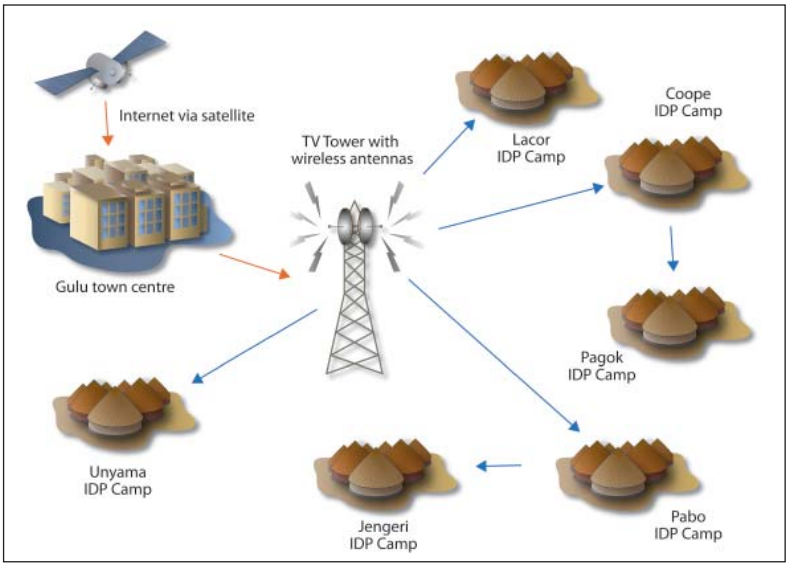
But there are many other important applications that will help to improve the lives of people in the area. Tackling illiteracy is one example. Our team provides training for both adults and children in how to use a computer and the internet, how to create and save documents, and how to type. We hold weekly classes in all of these subjects in the camps and at our hub site, and schoolchildren can use the internet to assist them in their studies. Our local administrator has also set up an internal website so that people can practise reading and writing, access tutorials, search the internet and post messages for each other.

As a result of our efforts and the long-term work of other organizations in the area, the level of literacy among the local people has noticeably improved. Farmers are able to access information about improved farming techniques, which has enabled them to increase crop yields, and to market their produce. The internet has also brought access to the latest medical information and counselling, so there is now far greater awareness of HIV/AIDS and methods of prevention. The system also provides communication links between the IDP camps and the various rural hospitals so that people have better access to prompt medical attention.

Some of the people living in the IDP camps are now also making use of web 2.0 technologies. A group of residents in the Pagak camp, for example, have formulated detailed proposals to attract funding for educational and farming projects, and have posted them on the BOSCO website wiki.

There have been other, more substantial benefits as well. The people of the north had been separated not only by distance from Kampala, the country's administrative centre, but also by the lack of information. In many remote areas newspapers were not available, and there was no phone service. But now, as Fr Joseph Okumo, an Acholi himself and the director of the project in Gulu, says, 'BOSCO has brought the people closer to their brothers in the south, closer to their government and closer to their parliament. It has brought the schools together and brought us information about our country'.

The BOSCO project is off to a successful start. We have also received inquiries about the possibility of applying it in other parts of the world. The system has been thoroughly tested in Uganda, in as remote an area as anyone could imagine. If it works here, it can work almost anywhere. Funding has remained elusive, however. Numerous foundations have expressed their interest, and money from several international endowments and trusts are in the pipeline. For now though, we are doing our best to provide immediate and effective help on the ground, to encourage the people in the IDP camps to speak for themselves rather than to rely on other people to advocate for them. We promote education and help focus world attention on this urgent situation. We try, in our own small way, to help. ■

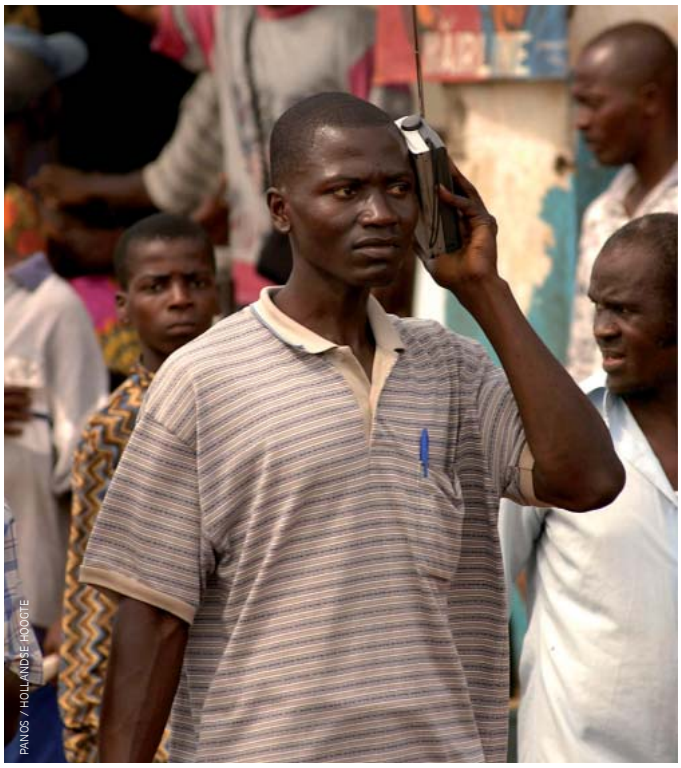


A schematic diagram of the BOSCO network.

INPETTO

From propaganda to peace

Radio was used to incite hatred in the build up to the genocide in Rwanda. But today the medium promotes messages of reconciliation and peace to those still traumatized by the violence.



PANOS / HOLLANDSE POORTE

Case study

The radio station *Radio Mille Collines* (RTLM) played a significant role in instigating and organizing the 1994 genocide in Rwanda. Its broadcasts followed the methods seen in almost every other genocide. It is a process of spreading hatred that usually begins by telling people that they are afraid, that their problems are caused by one single factor, by one single enemy, and that all these problems can be solved by going against this one enemy. In Rwanda, such messages led to the deaths of nearly one million people over the course of a few short months.

More than a decade later, the country is still recovering from those brutal days and radio is now playing a role in the healing. But, as George Weiss, director of La Benevolencija, a Dutch NGO, points out, the process is very different: 'It is much easier to incite hatred than to promote peace, and doesn't take anywhere near as long. To promote peace we have to tell people that there is not only one single factor causing their problems. The situation is complicated, but those who wish to incite hatred tell people that the answer is simple. That is the main difference.'

Radio La Benevolencija designs and produces radio programmes to help Rwandans come to terms with the trauma of the genocide. As well as factual news and documentary programmes dealing with crises around the world, the organization also produces a popular radio soap opera, called *Musekeweya* (New Dawn), that combines entertainment with information. There are many programmes like this all over the world promoting, for example, HIV/AIDS awareness, but Radio La Benevolencija has adopted a unique approach.

'Our methodology involves delivering psychological insights to people with very little education,' says George Weiss. 'We explain the process of genocide from both historical and psychological perspectives. All genocides throughout history have followed the same pattern. It doesn't matter if we talk about Armenia, Cambodia, Nazi Germany or Rwanda; society goes through certain stages to reach the point of genocide. We teach people how the violence evolves and how to counteract it. We also explain what trauma is, what it does and how to heal it.'

Control

All of this information has to be packaged into an entertaining storyline. *Musekeweya*, now in its fourth year, deals with two villages at odds with one another. Within each village the same societal processes that occur in every genocide take place, with the result that the villages end up attacking each other.

'We show people that what went on in Rwanda has also happened in other parts of the world,' explains Weiss. 'We're giving the people an answer to something that has been bothering them for a long time. It wasn't some evil entity that turned the Rwandans into monsters. They were not devils who committed these monstrous deeds, but people who had been manipulated by a psychological conditioning. For the survivors who witnessed the violence, this knowledge gives them a sense of control. Once they know how this conditioning works they can learn to resist it. The people gain a sense of control and can start to feel safer.'

The storylines for *Musekeweya* are put together by a team of local scriptwriters. They then send the scripts to psychologists who make sure each episode contains the right information for dealing with trauma and promoting reconciliation. Although the process of counteracting hatred inevitably takes longer than it does to incite violence, Weiss is convinced that radio messages can help Rwandans recover from the genocide.

'Radio is the most important medium for distributing information in Rwanda, since literacy levels are generally rather low. Radio also gives people access to the outside world. Almost everyone can understand it, even if they don't know how to read. And radio is much less intrusive than television. It works almost subliminally.'

La Benevolencija's project in Rwanda has been so successful that the organization has been asked to extend it to cover the neighbouring countries of Democratic Republic of Congo and Burundi. The organization will also start a similar project in Bosnia. Even though the war in the Balkans has been over for more than a decade, as in Rwanda, there is still a lot of work to be done, says Weiss. 'People underestimate how long it takes a country, and its population, to recover after a war. The best example is in Western Europe, where reconciliation after World War II took about 50 or 60 years. But even today there are some people who still associate Germany with Nazism. As we saw in Rwanda, it can take only a few months to destroy a country with hatred, but it often takes at least two generations before a population and a nation can completely recover from conflict.' ■

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JERRY FOWLER, STAFF DIRECTOR OF THE UNITED STATES HOLOCAUST MEMORIAL MUSEUM'S COMMITTEE ON CONSCIENCE

Campaigning against conflict

Frustrated by the lack of mainstream media attention, international human rights organizations are using the internet to maintain focus on the conflict in Darfur.

Case study

'When the plane came I was five months pregnant. I lost my baby because of the bombing. When the plane bombed I was outside the house, I saw that my husband was inside. I ran to the house. The smoke from the bomb made me cough, then I lost blood and my child. My body still hurts and my stomach is still big despite the fact that I lost the baby.'

Nura Rahma Abdu comes from the village of Kornoy in North Darfur. When she reached the relative safety of a camp for internally displaced persons (IDPs) in neighbouring Chad, she told her story to a representative of Amnesty International. Her testimony is shocking, but is only one of many presented in the project *Crisis in Darfur*, launched by the United States Holocaust Memorial Museum (USHMM) on the satellite image viewing application, Google Earth.

Alongside the testimonies of people who have been driven from their homes by the violence in Darfur are photographs and videos from a variety of sources, plus links to the websites of humanitarian organizations working in the region. To view the information users first have to download a file from the USHMM website. When opened in Google Earth, the file displays icons on the satellite images of Darfur showing the exact locations of damaged and destroyed villages. Other symbols show the positions of towns, roads, administrative centres, and refugee and IDP camps.

By working together with Google Earth, USHMM hopes to give people living at a safe distance a chance to glimpse the destruction from a conflict that, according to John Holmes, the United Nations head of humanitarian affairs, has so far claimed the lives of an estimated 300,000 people and caused a further two million to lose their homes and livelihoods.

USHMM asks us all to bear witness to current threats of genocide across the globe. 'When it comes to responding to genocide, the world's record is terrible,' says USHMM director, Sara J. Bloomfield. 'We hope this important initiative with Google will make it that much harder for the world to ignore those who need us the most.'

Vigilance

Amnesty International is running a similar campaign, also using satellite images. *Eyes on Darfur* focuses on 12 villages in areas deemed vulnerable to attack by the Sudanese government

Hawa Salihdin and her children in the Iridimi refugee camp, Chad. Her father, brother, cousin and 30 other people were killed when the militias attacked her village. Her mother, Hadiya Ahmed, disappeared and is still missing.

and militia forces. Some of the villages, for example, are located along the usual migration routes of nomadic farmers in the area. According to information on the *Eyes on Darfur* website, grazing land in the north of Darfur was shared by everyone, Arabs and non-Arabs alike. But these days, because of the conflict, non-Arab farmers are no longer able to travel safely to these areas.

The village of Malam al Hosh, in particular, has excellent grazing land. Farmers from the region take their herds to these pastures every February and can remain there for up to six months during the dry season. If members of the Janjaweed militia took control of Malam al Hosh they could move in their own animals and restrict access to grazing land and wells. This would deprive the neighbouring communities and their livestock of essential food and water resources and weaken support for local opposition forces.

Amnesty commissioned high-resolution satellite photos of the villages, which they, and expert researchers, regularly analyze to check for any signs of destruction by government or militia forces. Anyone visiting the website can also check the photos, look at satellite evidence of previous violence in the area, and read reports on each of the 12 villages. 'We are taking advantage of satellite technology to tell [Sudanese] President al-Bashir that we will be watching closely to expose new violations,' said Irene Khan, secretary general of Amnesty International. 'Our goal is to put pressure on Sudan to allow the peacekeepers to deploy and to make a difference in the lives of vulnerable civilians in Darfur.'

Serious game

While the Amnesty and the USHMM campaigns present the hard facts of the conflict in Darfur, mtvU, a TV channel and website for college and university students in the USA, tries to show what life is like in an IDP camp with their online game, *Darfur is Dying*. Each player chooses one of eight characters – two adults and six children – to represent them in a virtual Darfur. At the start of the game the character leaves the camp to fetch a container of water from the well, but on their way they are likely to come across armed Janjaweed militias. The aim of the game is to see which characters can collect water and return safely.

If the character is caught by the Janjaweed a banner flashes on the screen with the message: *'You have been captured by the militia* – you will likely become one of the hundreds of thousands of people lost to this humanitarian crisis ... boys face abuse and possible death if caught by militias'. The player 'sitting at a far-off computer' is given the chance go back and choose another character to continue the search for water. The person living in Sudan, as another message reads, does not have that chance.

A girl character, although not as fast as a boy, can carry more water back to the camp. But if she is caught the message then informs the player that 'Girls face abuse, rape and kidnapping by the Janjaweed.' When Sittina, the adult female character, is selected she goes off with a bright yellow container on her head. Women, the game explains, usually collect water as they can carry more than the children. But Sittina is slow and when captured she faces an even greater danger of rape and abuse at the hands of the militia.

The game tries to show the dangers and the everyday choices that refugees living in the IDP camps have to make every day. They need the water not only for drinking, but also to irrigate vegetable gardens and make bricks to repair buildings damaged when militias attack the camp. Then, when the water runs out, the refugee faces that run across the desert to the well again.

These projects, along with many others making radio programmes, producing blogs, videos and recording testimonies, are using ICTs to campaign against the violence in Darfur. They try to engage different audiences – from individual college students and human rights activists to policy makers and members of the international community – in the hope that the violence is never forgotten and to focus efforts to bring about a swift solution. But, after five years of fighting, the conflict in this part of Sudan continues with little sign of cessation. Does that mean all these peace efforts have been in vain? Perhaps only the people of Darfur can answer that question. ■

Related links

Crisis in Darfur – United States Holocaust Memorial Museum
➜ **www.ushmm.org/maps/projects/darfur**

Eyes on Darfur – Amnesty International
➜ **www.eyesondarfur.com**

Sudan: the passion of the present
A **blog with links to resources on Darfur.**
➜ **http://platform.blogs.com/**

Miraya FM
A **radio station in Sudan and website.**
➜ **www.mirayafm.org**

The Darfur Radio Project
A monthly radio broadcast that explores the conflict in Darfur.
➜ **www.darfurradioproject.org**

Darfur awareness
'We blog for Darfur' is a reaction to the lack of media coverage of the Darfur conflict.
➜ **www.darfur-awareness.org**

Darfur Diaries
Video footage exposing war crimes in Darfur.
➜ **www.darfurdiaries.org**

Google Earth Community: Darfur – Destruction of 1,000 Villages
Observations from images of Darfur found in Google Earth.
➜ **http://bbs.keyhole.com/ubb/showflat.php/Cat/0/Number/721111**


COSMOS/ HOLLANDSE HOOGTE

Viewing Crisis in Darfur on Google Earth

Google Earth is free to download from the internet: http://earth.google.com/
Install the application, and then download a file (72kb) from the USHMM website (www.ushmm.org/maps/projects/darfur). Start Google Earth, go to File, Open, then browse for the saved file. In Google Earth go to layers, look for the Global Awareness and check the USHMM tab. The icons and information then appear over Darfur. Links to other website can open either in the Google Earth application or a separate window.

Emergency satellite solutions

Getting precise information during a conflict or emergency means relief organizations can take quick and effective decisions. UNOSAT analyses satellite data to give disaster managers the details they need.

Case study

A major disaster has just occurred, affecting a vulnerable region of a developing country. The international humanitarian relief community is mobilizing, while local and national emergency response teams are trying to assess the situation. Floods and landslides have blocked roads to the area and communication lines are down. Rural villages surrounding the site are cut off. The first relief workers to reach the outskirts of the affected area report that a large number of people are dead and that crops, livestock and infrastructure are all badly damaged. No single person or agency has a comprehensive overview of the site. Donor nations understand the situation is serious, but don't have enough information to make informed decisions on the type and amount of aid needed.

This is a typical scenario that emergency relief organizations have to face in almost every disaster. However, rapid response teams and disaster managers are increasingly using information from satellite technology to improve the level of assistance they give. Since 2002, our team at UNOSAT, the Operational Satellite Applications programme of UNITAR (United Nations Institute for Training and Research), has been analyzing satellite data to provide United Nations agencies, NGOs and UN member states with specific details suited to each emergency situation. We produce maps, provide damage reports with the locations of destroyed buildings or landslides and deliver statistical data on, for example, flooded areas per district.

Activate

At the onset of a conflict or disaster, one of the relief agencies will call the UNOSAT's 24 hour phone number for assistance. Our on-call officer then contacts the data providers to programme the relevant satellites and gather images over the affected areas. About 70% of the data comes from public or commercial sources, while the rest is provided by the International Charter Space and Major Disasters (Space Charter), a service set up by the European and French space agencies. The next step is to search the archives for older imagery from the same area which can be used to compare with the new images.

By analyzing the satellite imagery, geo-spatial information and GIS (geographic information system) data using specialized software we can provide precise locations of destroyed infrastructure, such as buildings, bridges and roads and estimate the extent damage done by landslides, floods and storm surges. Combining landslide information with a map of the road network shows which roads are inaccessible, and which roads are open for the quickest delivery of aid. Combining population distribution data with flood information tells decision makers how many people are likely to be affected by the floods, and where. Areas most in need can be prioritized quickly and recovery teams directed to the exact location.

After analysis we make the maps and data available online for public distribution. Organizations working in the affected area can also add to this data with local details to build a more accurate picture of the locations.

DIGITALGLOBE 2008, UNOSAT

Newly available, very high-resolution satellites images can show the flow of individual refugees crossing a bridge on the Cameroon / Chad border.

We use a wide range of satellite sensors depending on the type and extent of the disaster. For example, it might be best to use radar images to gather information on the extent of flooding in an area, while earthquake damage assessment needs very high resolution optical data. The latest satellite imagery provides a level of detail down to 50 cm, meaning that even the number of people in a scene can be counted (see photo). For dynamic and often complex refugee situation, this information can be a good complement to field observations. Imagery is also useful to document potential human rights abuses on, for example, the right to adequate housing.

Examples of major disasters where satellite imagery has been used as an integral information management tool includes the Pakistan earthquake in 2005, Middle East crisis in 2006, Mozambique floods in 2008 and Cyclone Nargis over Myanmar, also in 2008. In 2007 alone UNOSAT supported a total of 46 emergencies most of which were floods, earthquakes and storms. Not all of them made the news but somewhere a satellite was watching. ■

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Keeping in contact

One of the biggest problems in any conflict or emergency situation is communicating with, and keeping track of, staff on the ground. But a new web 2.0 application could make coordination of relief efforts much easier by combining information from three different websites along with Google Maps to provide the locations of colleagues or partner organizations.

Contacts Nearby was developed by InSTEDD, an organization dedicated to developing technology for humanitarian relief and disaster response. The application takes a bit of time to set up but a simple text message from a mobile phone keeps the system up to date. The technology is still in the early stages of development but the following instructions will help you make use of the 'technical preview'.

Set up

To make the best use of Contacts Nearby you need to set up an account at each of the three websites: the InSTEDD site, the social networking site, Facebook, and Twitter, which allows users to post regular updates on their whereabouts and what they are doing. The accounts then all need to be linked with a little bit of to-ing and fro-ing between the sites.

Log in to Twitter

If you don't already have one, create an account at Twitter (www.twitter.com) and make a note of your username. Click on 'Turn on your mobile phone', or 'Settings' then 'Devices' to add your mobile phone number to the system. Twitter will ask you to send a code to verify your number, then the service will send back a number to which you can send your updates. Make a note of this number.

Add the application in Facebook

Login to Facebook, or create a new account at www.facebook.com. On your profile page note the URL (it should look something like: www.facebook.com/profile.php?id=123456789

Add the Contacts Nearby application by going to: http://www.facebook.com/add.php?api_key=df75528923d809c46c5a1339a26c050d&ref=nf
Click on 'Add Contacts Nearby' then, on the 'Welcome to Contacts Nearby' page, click on 'set your preferences'. Add your Twitter account name.

Activate the service

After you save your changes click on the link: 'follow fnb'. This will take you to the Twitter website with the text 'follow fnb', (it should already be in the message field). Click 'update' to activate the Contacts Nearby service.

Once activated you can send text messages to the Twitter number with the text 'd fnb at' and your location, e.g. 'd fnb at Kampala, Uganda'. This will automatically update your location in the Contacts Nearby application in Facebook.

Register your location in Facebook

Click on 'My contacts nearby' and add the address of your current location. After a few moments this location will show up on a map. If the location is correct click 'Submit my location'. It can take a few hours before the system processes the information and shows your contacts in the area.

Log in to InSTEDD

Register on the InSTEDD website. www.instedd.org/accountcreation

Fill in your contact details, your current location, the URL of your Facebook profile page (that you noted earlier), telephone number and brief details of your professional experience. You will receive an email confirming that you have registered with the InSTEDD website. Follow the link in the mail to log in to your account, then click to edit your profile. Follow the link to 'External accounts' and add your Twitter username.

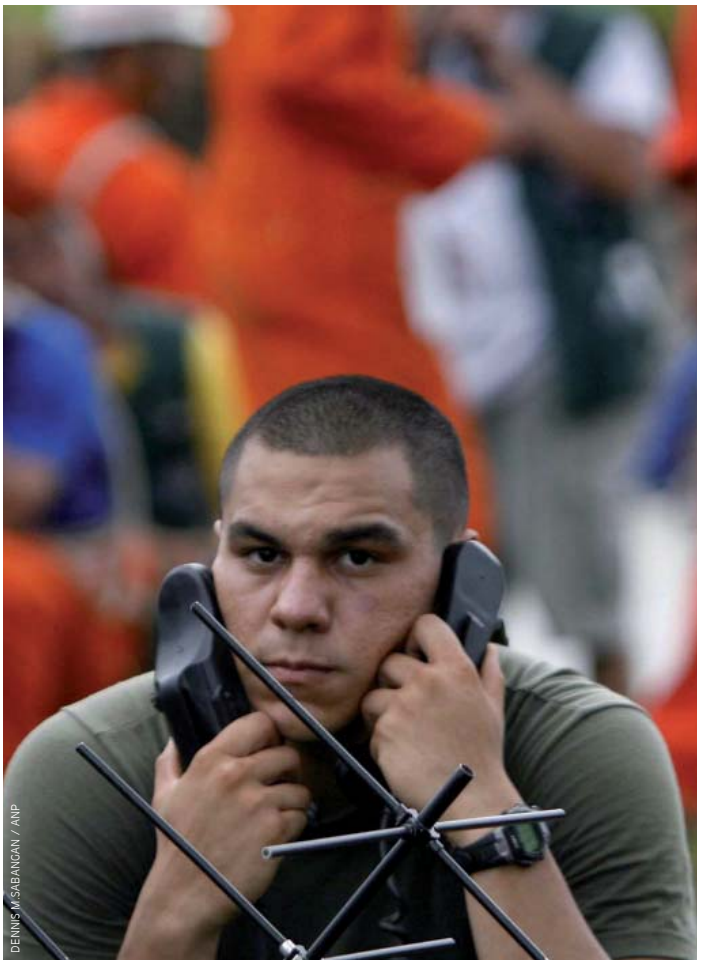
Update your location in Twitter

When you move to a different location send a text message with the text 'd fnb at (current Town), (current Country)' to your Twitter number or send the same text via the Twitter website. This sends a direct message to Contacts Nearby which will automatically update your position on the map for your contacts to see when they log in to the application on Facebook.

How the system could be used?

Each staff member or organization providing aid could log on to the application during an emergency. All their positions could be seen on the Contacts Nearby map by anyone with access to the web that was registered as a contact (or friend of a contact). This information could be useful to direct supplies to specific areas. Relief staff working in the worst affected areas can send their exact location via a text message to Twitter. One person, perhaps at a central command station, can track every member of the team. Those on the ground can communicate with the command post via text messages to give updates on the number of injured and damage reports. The types and amount of supplies needed can then be calculated and sent out. If ground staff find themselves in trouble, the command post can easily send the location of the nearest person or partner agency listed on Contacts Nearby. ■

For more information and further explanation go to the InSTEDD website: http://instedd.org


DENNIS M SABANGAN / ANP

Q&A

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Communicating peace

What exactly is 'peacebuilding'?

➜ Peacebuilding isn't just about high-level diplomacy, but also the combined efforts of different groups at different levels that make peace possible and durable. But it's important to recognize that those efforts don't always mesh smoothly. In Darfur, for example, both human rights and humanitarian organizations have an interest in building peace. But the advocacy work of human rights groups – which can be highly critical of the Sudanese government – is not always supported by the humanitarian aid agencies, which need the cooperation of the government if they are to continue to help the people of Darfur.

SVEN TORFINN / HOLLANDSE HOOGTE

How can small organizations or individuals use ICTs to contribute to peacebuilding efforts?

➜ Peacebuilding efforts have the most impact before and after armed conflicts, so it's vital that we look at how ICTs can support peace initiatives now, rather than when war breaks out. One of the biggest challenges for us is to see how we can extend the reach of technologies to help the communities affected by conflict. Strengthening community links, developing economic activities, improving lines of communication – all of these are essential. The real strength of the newer technologies is that more people now have access to them and can use them more creatively. If you have a radio set, you can only tune in to whatever is being broadcast. But if you have a computer with an internet connection, you can set up your own radio station over the web, share your experiences on a blog, contribute to a software development project for disaster management (such as Sahana), or document human rights abuses on websites like Ushahidi.

Has the technology used in peacebuilding changed over the years, if so, how?

➜ Technology has completely transformed our approach to peacebuilding. This really started in the 1990s, with the advent of projects that introduced radio, television and video elements into peacebuilding projects. One well known example is the Video Letters project, which promotes reconciliation between people on different sides of a conflict through the exchange of video messages. Since the end of the 1990s, the spread of the internet and cellphone networks have started to change things even more – not just improving access but also increasing the versatility of communications. The best example of this is the use of SMS as a cheap and simple notification system. We saw this most recently in Kenya, where people used mobile phones both to provoke and prevent the post-election violence.

Darfur has also shown the scope of ICTs to help in these situations – but also their limitations. The *Crisis in Darfur* and *Eyes on Darfur* projects (see page 8) both harness geospatial data to present a picture of the situation that simply would not have been possible even five years ago. These are valuable educational and advocacy tools for people not working in the field, but they don't necessarily have an impact on the humanitarian assistance operations in Darfur itself.

But it is important to remember that older technologies are still very effective. Radio in particular still has much wider coverage than almost any other form of mass media or personal communication. We need to make sure we take advantage of existing technology, even when we're excited by the new possibilities. We also need to bear in mind that communications technologies can be used both to promote and to undermine peace. The experience in Rwanda, where radio broadcasts were used to incite the hatred that led to the 1994 genocide (see page 7), showed that everyone involved in peacebuilding needs to stay alert to these sorts of uses, and be ready to combat them using their own technical capacity.

How is the use of technology for peacebuilding likely to change in the future?

➜ Geospatial technology will transform the way that people look at the world. Tools like Google Earth and Google Maps offer access to mapping technology for free. Projects like MapAction and CartONG are beginning to show how that technology can be used in the field. Mobile phones will become ever more versatile, and will be used in many different ways during conflicts. More affordable computing and better web access (probably through mobile phone networks) will also provide greater opportunities for people to start building their own approaches to peacebuilding.

Hardware has become more durable, portable, energy efficient and cheaper, which means that smaller organizations can have better access to ICTs. However, I worry about internet connectivity and electricity supply. The problem is that we live in a patchwork world where some areas are extremely well covered and others not at all. This patchwork could increase the differences between people who have access to technology and those who don't, leaving behind those most in need.

What is important is not the technology itself, but how people use it. In the future, many new peacebuilding initiatives will emerge from the people who are themselves affected by conflict – and it will be technology that will make many of those initiatives possible. ■