

Mobile IT helps conservationists get the message

Ken Banks, IDG News

Information and communication technologies (ICTs) are regularly touted as holding great potential to enhance the work of non-governmental organisations (NGOs) working for positive social and environmental change around the world. With many NGOs working in difficult and challenging conditions, any technology which enables improved communication is sure to be welcomed. However, while the development community has traditionally been quick to grasp emerging technology solutions – mobiles in particular – the same cannot be said for their conservation counterparts. Beyond the use of animal tracking devices and Geographical Information Systems (GIS), there have traditionally been few innovative conservation-based ICT applications to speak of. For much of the conservation community, ICT was limited in use as a general communication and administrative tool centred around office-based computers and computer networks, or the use of high-frequency radio and services such as Bushmail in the field.

But this is beginning to change.

The inevitable spread of mobile signal into conservation areas, and bordering communities where conservation efforts largely take place, is heralding something of a revolution in ICT use. The ability to transmit information electronically, whether from a tracking device on an elephant or a mobile phone in the hand of a park ranger, has opened up a raft of new opportunities. In recent years, as the technology has got cheaper, and as more and more phones get into the hands of rural communities and conservation workers, conservationists have found increasingly innovative ways of integrating the technology into their work. At the same time, the gap between what might have once been possible, and what today is possible, has narrowed significantly.

Take animal tracking. Traditionally this was carried out using VHF transmitting devices attached to a collar which, in turn, was attached to the target animal. Although the technique worked (it's still widely used today, in fact), there are a number of downsides including the amount of time needed in the field to 'listen out' for the animal, and the potential for human error (most triangulation calculations to pinpoint the actual location are done manually). What's more, if the animal happened to roam over large areas, then the field researcher also had to.

Today, increasing numbers of animals can be tracked using mobile technology. Typically, GPS/GSM tracking devices, attached to the target animal, can be programmed to automatically take a GPS reading and for the information to be sent to the researcher via text message (SMS). A number of projects have already started tracking elephants using this technology, including one by [Fauna & Flora International](#) (FFI), an international conservation organisation.

According to FFI, "In Kenya's Ol Pejeta Conservancy, FFI and its local partners have fitted elephants with radio collars that transmit their location in 'real time'. This technology is not only useful to

researchers who are able to track the elephants with far greater precision, but can also be used on problem animals – elephants that habitually break fences, for example. The collars can be remotely programmed to send SMS messages at user-defined intervals or when approaching a particular location. This means that farmers and wildlife managers can be alerted by SMS when an elephant approaches a fence or cultivated area. Known as an E-fence, this technology is being deployed by the Laikipia Elephant Project in conjunction with Save the Elephants”.

Similar tracking technology has also been used in a project in South Africa to track crocodiles as part of the planning of an eco-tourism site, and earlier this year a stranded seal pup was re-released off the coast of Greece with a GSM/GPS tracking device attached to help monitor its progress.

Of course, mobile technology can do much more than track wildlife. One pilot project, recently carried out as part of a “Participatory rapid response forest management system” project in Kenya, used [FrontlineSMS](#) with a group of ten scouts in the field to monitor electric fence breakages by elephants. According to Francis Kamau, the Project Manager, “It really worked very well because scouts were able to send messages on the breakages, and we were able to sort them using the software and communicate effectively on field logistics in order to facilitate quick repair”. Something as simple as communicating and co-ordinating fence repairs can save crops from destruction and, in more extreme cases, the death or injury of the elephants or farmers themselves.

Access to accurate natural resource information is also critical for the proper management of many conservation areas, and mobile devices are being increasingly used here, too. At the more simple level, phones put in the hands of indigenous Amazonian communities have helped Greenpeace respond quickly to threats of illegal logging, while higher-end applications such as Helveta’s “CI Earth” allows the downloading, uploading and creation of detailed maps, pinpointing not only areas of significant biodiversity value or importance, but also indigenous burial and religious sites. Today, increasing numbers of conservation projects are utilising this kind of technology in their work.

There is growing realisation that human health is inextricably linked to the health of the environment. With the earth’s natural resources under increasing threat, mobile technology is a welcome addition to the armoury of conservation groups and communities alike. Mobile technology isn’t the answer in itself, but it could well form part of the solution. Watch this space.

Ken Banks, founder of [kiwanja.net](#), devotes himself to the application of mobile technology for positive social and environmental change in the developing world, and has spent the last 15 years working on projects in Africa. Recently, his research resulted in the development of FrontlineSMS, a field communication system designed to empower grassroots non-profit organisations. Ken graduated from Sussex University with honours in Social Anthropology with Development Studies and currently divides his time between Cambridge (UK) and Stanford University in California on a MacArthur Foundation-funded Fellowship. Ken was awarded a Reuters Digital Vision Fellowship in 2006, and named a Pop!Tech Social Innovation Fellow in 2008. Further details of Ken’s wider work are available on his website at [www.kiwanja.net](#)