Forest Community Monitoring in Cameroon

a customer success story

"The accessibility of this technology will ensure that extensive forest monitoring on the scale required to address the serious environmental threats facing the forests of the Congo Basin is now an achievable goal."

- Dr. Jerome Lewis
Univerity College London

Project Summary

The Forest Community Monitoring System deployed in Cameroon has been implemented by Forest Peoples Programme (FPP), University College London (UCL), Centre pour L'Environnement et Le Developpement (CED) and Helveta with local and indigenous forest communities across the southern forest zone of Cameroon.

Business Challenge

Traditional techniques for forest monitoring are expensive and time-consuming due to their dependence on elite outsiders manipulating gadgets requiring education and literacy. The project sought to engage with semi and non-literate indigenous communities by allowing them to actively record data relating to community land-use and, at the same time, monitor logging activity. Information needed to be gathered quickly and accurately using a format accessible and understandable to non-literate users.

Solution

Helveta's CI Earth software platform, which has been used for similar mapping projects in both Congo Brazzaville and Nigeria, allows users with low literacy levels to record GPS referenced information using 'touch-screen' HHC's (Held Computers). An existing database of icon images was enhanced in collaboration with the selected communities in Cameroon to represent the data for collection.

Background

The forest areas of Cameroon are mainly inhabited by the indigenous Pygmy hunter-gatherer populations, Bantu and Ubangian speaking farmers, fishers and merchants. The forests are an especially important source of livelihood for the Pygmies providing most of their food, medicine & craft materials and are especially important in the religious and ritual life of these people.

In 2008, an initiative was launched aimed at enabling local forest communities to map their forest use and resources as well monitor logging activities in their local area. The main goal of the project was to set up a monitoring system whereby local indigenous communities could gather and record data relating to resource use on their community's land. A particular focus of this project has been in supporting the Forest Law Enforcement Governance and Trade (FLEGT) and AFLEG (African Forest Law Enforcement Governance and Trade processes, to provide a platform to aid in forest monitoring and remote verification of forest management activities in over 15 sites across Cameroon. The project builds on almost a decade of work in Cameroon by FPP and CED to support forest communities to map their lands, as part of a series of projects aiming to help communities protect their rights and resources.

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Results

To date, the following key mapping outputs have been achieved:

- Data was collected south of Dimako in eastern Cameroon. Logging activities were monitored both in and outside communal forest areas where Baka Pygmies currently reside or hunt
- Forest communities in the Mbalmayo region recorded bulldozer tracks that indicated industrial logging activities near illegally felled trees located outside of the legal commercial logging boundaries.
- Data gathered by local communities assisted SEFAC (an Italian logging company operating in Cameroon) in identifying which communities it should consult over management plans for local forest areas as part of their FSC certification process.

System Configuration

- CI World Contol Intelligence Server
- CI Mobile data capture application
- CI-PDA handheld data capture units with C/F SiRFstarIII GPS receiver

A significant challenge that the project team faced was how to engage with local indigenous and, in many cases, non-literate communities and provide a mechanism with which they could record relevant datasets in a digital format. The solution was provided by Helveta through its unique CI Earth software application. CI Earth is an icon-driven data capture application used for creating maps of forest inventory in an online environment which can be accessed over the internet by authorized users. A compelling feature of the software is that it is not language or literacy dependent and Helveta has developed a library of icons representing different datasets of forest assets allowing non-literate peoples to identify through images, data that they want to record.

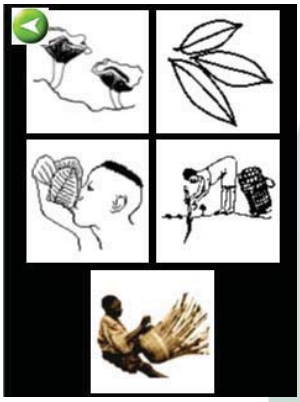
At the outset of the project, the project team, comprised of Dr Jerome Lewis (Professor of social anthropology at UCL); John Nelson (Africa Policy Advisor, FPP); Belmond Tchoumba (Programme Manager, CED); and Simon Bates (Project Manager, Helveta) met with selected indigenous communities in Cameroon to introduce them to the technology and, using the Icon library, participatively develop a set of icons embedded into decision trees that represented data that the communities wanted to collect.

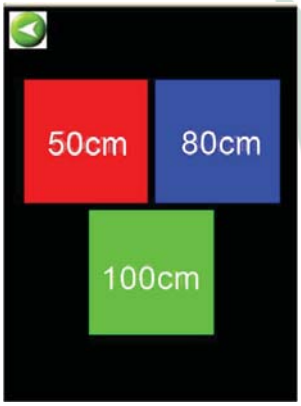
As well as documenting forest usage by the communities, a key objective of the Forest Monitoring System was to record incidences of logging activity in community areas. This monitoring initiative was undertaken to contribute to FLEGT (Forest Law Enforcement, Governance and Trade) and AFLEG (African Forest Law Enforcement, Governance and Trade) processes currently sponsored by the British government and European Union in Cameroon and across the Congo Basin.

Data Gathering by Indigenous Peoples

15 communities in Eastern Cameroon were selected to participate in the data collection activities. Training and support for the communities was provided by CED. The data was collected by local communities who retraced areas where they carried out their daily excursions to hunt and gather food and other products in the forest. Both men and women from the communities were involved in the data collection ensuring that gendered differences in the use of forest resources and forest usage were considered as part of the project. In order to monitor logging activities in the area, the community members were equipped with differing lengths of coloured rope with which to measure tree stumps and logs on the ground that had been left by loggers, recording them as red, green or blue, according to which rope length was needed to span the diameter of the tree in question.

The rope lengths were based on allowable cut thresholds under Cameroon forest law and so permit an initial identification of undersize trees that have been felled. If a red rope was used to measure a stump diameter, it would be a likely indication of illegal logging activity. Any stumps with diameters smaller than the blue rope are possibly illegally cut depending on the species, and therefore require further investigation. A green rope would be used to records trees of legal diameter that have been felled. For physically recording the data, coloured icons were created matching each rope length thus allowing the communities to accurately record their observations.





At the end of each data collection excursion, the gathered data would be uploaded over the internet from the HHC to the Helveta database via a satellite modem and laptop. Together with the communities, the team would then log onto the database using a web browser and download Google™ Earth maps with the gathered data points represented using the same icons on the maps. These maps are then presented to the communities.

The project was featured on the BBC World Service news. Coverage can be found online at http://news.bbc.co.uk/player/nol/newsid_7210000/newsid_7219900/7219986.stm?bw=bb&mp=wm&asb=1&news=1&bbcws=1

Funding

The project received funding from the Foreign and Commonwealth Office of the British Government via its Global Opportunities Fund and a was implemented by the Forest People's Programme (FPP), University College London (UCL), Helveta and Cameroon's Centre pour L'Environnement et Le Developpement (CED).

Patrick Newton, CEO of Helveta said "This technology is helping local communities protect their traditional lands and livelihoods that may have been badly affected by illegal logging. In doing so they are also helping the Cameroonian government meet their obligations under the EU – FLEGT Voluntary Partnership Agreement to monitor logging activity. This project will help ensure a sustainable timber industry for future generations."

Jerome Lewis, Professor of Anthropology at University College London said, "The opportunities that this software and mapping solution offers local communities to become active and cost-effective monitors of the forest areas upon which they depend are set to revolutionise the way in which forest law enforcement and monitoring evolve in the next decade. Community members can now collect accurate data on resource use and abuse in their traditional areas and quickly communicate these findings when necessary to the relevant authorities to investigate."

John Nelson, Africa Policy Advisor for The Forest Peoples' Programme remarked "Over the past few years our investment in the development of this technology with Helveta and forest communities from the Republic of Congo, the Central Africa Republic and Cameroon has resulted in a robust and practical tool that communities can use to engage directly in the management of their forests in a way that was previously impossible. Using this technology communities now have the chance to accurately record key forest resources which form the basis of their livelihoods, as well as the illegal activities by loggers, and to produce maps of that data that are easily understandable to local communities as well as logging companies and governments. Data collection with communities that previously took months to implement can now be achieved in days, promising to revolutionise the way logging in Central Africa is monitored and controlled, while helping poor and marginalised forest communities protect their rights."

About CI Earth

CI Earth is used to create maps of forest inventory in an online environment accessible only to registered users. Data is captured using CI Mobile and GPS technology. The CI Mobile interface is configured to record data types that are relevant for a particular region or management initiative. Users range from logging operations, through government and NGO to local communities. CI Earth data is synchronized with CI World through any locally available means of internet connection ranging from satellite through to dial-up modem. GPS referenced data is then made available within CI World in chart form and through GIS applications such as ESRI's ArcView and GeoWeb solutions such as Google™Earth.