

## Voxiva (Peru)

[www.voxiva.net](http://www.voxiva.net)

*A voice portal for health*

### Abstract

Voxiva, a private social venture, is committed to extending the benefits of information technology beyond the digital divide. At the request of local health officials, they looked for ways to use existing telecommunications infrastructure to strengthen disease and disaster surveillance and response in Latin America. Their product, ALERTA, is a disease surveillance application that enables health professionals in rural areas to use any telephone or the web to submit reports to healthcare authorities. This information is then entered into a computer system enabling the health authority to keep track of disease in a timely and up-to-date manner throughout the country and from the data provided generate alerts automatically back to health staff. The system also enables rural health professionals to receive information and help through voice mail, again via the local telephone. This product has so far been piloted in 76 health facilities located in Cañete-Yauyos zone, approximately 140 km south of Lima, and in Chilca-Mala zone, approximately 80 km south of Lima.



Photo 1: Phoning in the latest health report to the local authorities

### Background

Voxiva is an international for profit organization set up in 2001 to look into and provide voice and data solutions for the public health sector. Through the creation of a shared application platform, ALERTA, Voxiva enables both the collection of data from health workers on the ground and the interaction between health workers across countries. This may come in the form of accessing reports, current health trends and emergency notifications either by telephone or through the internet. Peru was chosen to pilot this system due to rural telecom expansion and commitment to public health.

At present there are 6,000 health centres across Peru, each of which is required to report cases of certain types of diseases (e.g. cholera, dengue, malaria, polio) so that the Ministry of Health can investigate and take necessary action. However, the current system is mainly paper-based with computers at the top end of the health service, so it can take up to three weeks before the information is received at the ministry of health. Beyond the challenges of reporting disease, the health system faced the problem of giving feedback to remote health workers. More than 90% of users reported receiving health alerts "never", "rarely" or "less than once a month." The Peruvian Ministry of Health also wanted to update its present surveillance system. To help with this Voxiva started work in Peru in March 2002 with the objective to improve the speed and reach of communications between health professionals and organizations, with no investment in new hardware. In addition, the reporting and communication process should also strengthen maternal health, immunization and other health programmes.

In partnership with the Peruvian department of Health Voxiva set up the ALERTA platform using existing telephone lines and internet servers. Voxiva also trained a number of health personnel to use the system. These health workers are now able to make a free phone call to report disease and share health information. The training also included the administration of user and group accounts, how to submit reports and retrieve voice mail. Through using Peru's existing telephone lines and internet servers the idea is that Peru will be able to respond faster to health emergencies. The use of the existing telephone network makes ALERTA far more accessible than a system solely reliant on the internet.

To date, the project has trained 149 users and counterparts in 76 health facilities across the regions of Canete-Yauyos and Chilca-Mala. Local systems administrators in three health offices and the regional office have also been trained. The evaluation of the project to date has been carried out by VOXIVA and the department of Health through the collection of suggestions for improving the system by various health personnel. At present a team from the Economics Faculty of San Marcos University is carrying out an external project evaluation.

## Impact/Results

- The results to date demonstrate that it is feasible to do real time electronic disease and disaster reporting – even from communities with access to only a community pay phone.
- During a recent Green alert after flooding, health staff were able to submit reports on a daily basis to the Ministry of Health.
- Currently 76 health facilities have been connected to the voice portal and have been able to submit 4,269 reports and 28,296 cases electronically.
- Designated health authorities have received immediate notifications of suspected cholera, Bartonellosis (a vector borne disease of the Andean region), other diseases, and local disasters. Health officials have been able to learn about cases and respond in a matter of hours and days instead of weeks. Furthermore they have been able to easily send feedback and guidance to health workers in remote areas.
- Voxiva Peru has now extended it's services to aid crime reporting by citizens in Lima and enables some bank customers to access their balances and check bill payments across the phone.



Photo 2: Alerta services card

## Key Issues

### ➤ Partnership

A key requirement for this project has been the partnership with the Peruvian Ministry of Health and local health officials. By working with them to help strengthen the service they provide in rural areas through improved information flows the project has been able to gain support and co-operation from health professionals and organizations.

### ➤ Target groups

The main target group of this project are the 76 health facilities and 204 users among doctors, nurses, technicians and other health personnel in two geographic Zones south of Lima. These zones comprise over 200,000 habitants and 49 districts.

### ➤ Capacity building

This service is designed to increase the capacity of health staff across Peru by giving them a speedier procedure for reporting and collection of information from the health service. With regards to the technology, training of staff has proven to be required for applications often taken for granted. For example, at the start of the project few users had used the internet or voicemail.

### ➤ Technology

At present internet access is very limited outside of the large urban areas in Peru. In addition, the cost of connecting to the internet is currently a significant barrier as the per capita GDP is currently \$2,130. Therefore, this project mainly uses the telephone for health workers to access the service. To use the service the health workers can either dial a free phone number that is connected to a secure server, or enter their information over the internet. After entering their own personal account number and password they can choose from the following service options: collect voice mail, send in reports and data collection results, make simple transactions, retrieve data and reports from a data base, access pre-recorded information from a library, and connect to an operator. Through this process reports are submitted in real time and health authorities are then able to immediately monitor the health

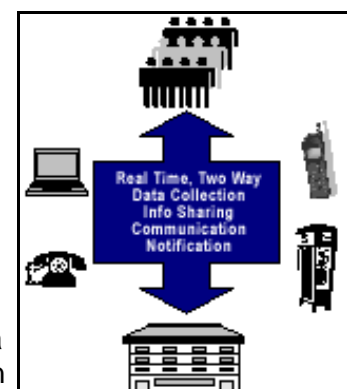
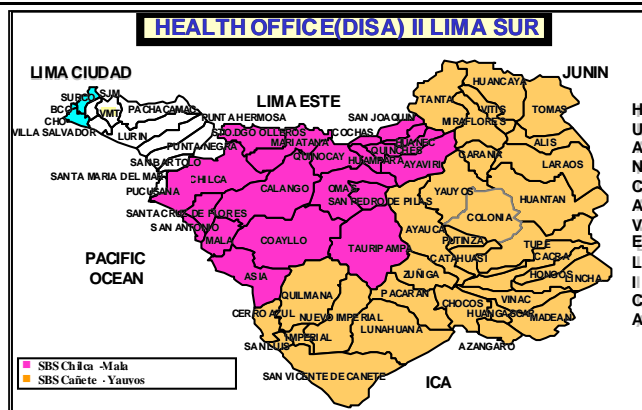


Diagram 1: ALERTA system

situation through their work stations that are connected to the system. This facility centres around a shared application platform, ALERTA. Technology at the Voxiva Peru's office includes computers with access to the internet and a telephone. Whilst the web, database and telephony servers are held housed at the secure hosting centre of Telefonica.

### ➤ Finance

Voxiva began with a grant of US\$500,000 from the Markle Foundation. Grants specifically for the Peruvian project includes US\$250,000 from *infoDev*, and in kind support from the Peruvian government and Voxiva. User groups do not pay to access any of Voxiva's services as they are considered to be a part of the resources available to health workers.



### ALERTA in action:

On Saturday August 24<sup>th</sup> 2002 the first “suspected case of measles” of 2002 was notified in San Vicente (Cañete-Yauyos) through ALERTA as well as through the paper-based system. The ALERTA notification instantly reached the Cañete-Yauyos SBS office and a number of Health Officials’ cell phones, whereas the paper-based one only reached Cañete-Yauyos SBS office. In addition, the electronic message reached the Programme Director in neighboring Chilca-Mala SBS. The ALERTA messages were received on cell phones around 3:30pm - a time when the health administrative offices are closed. This message allowed Health Officials to coordinate actions and encourage their personnel to complete an investigation into the suspected case according the MOH national procedures, which includes the sampling of blood. In addition, the Chilca-Mala SBS Program Director coordinated actions to verify the report in order to prevent any possible dissemination of the disease through the highway that connects San Vicente to Chilca-Mala.

## Issues and Lessons

### Challenges

- Despite the fact that the web and telephone are proving to be a feasible option for the electronic reporting of disease and natural disasters the lack of telephones in some communities remains a major constraint. In a few of these areas health facilities are using the radio to transmit data. However, the major telecom carrier in the country now recognizes that this non-conventional traffic could become a sustainable way to support the rural telephony network.
- Rather than the introduction of new technology, a major challenge has been to design a system that works with the current organisation structure and work flows. This has proved especially difficult given the high personnel turnover at all levels of government, requiring the project to seek new "champions" and orient new participants, even in a very short project period.

### Quotes from users

- “The benefits of Voxiva for our healthcare institutions have been the possibility to principally communicate serious cases in a rapid and timely manner” (Leonor Raman Cuya, Health Technician, Mala health post)
- “The Voxiva system is saving me lots of time for improving quality and decreasing the hours spent on the process...time, which for me, is valuable” (Cesar Falconi, Alerta Administrator, Chilca Mala District)
- "We can see the information instantaneously. Now everyone is informed about a case and the disease and the appropriate measures can be taken. It is truly an important benefit. It could help eradicate diseases." Dr. Jaime Levano, Cañete, Peru

## Key factors/issues, which have led to poverty reduction outcomes.

- Policy obstacles were avoided as this project partnered with the Ministry of Health in Peru.
- The most important success factor was the recognition that it is possible to achieve high degrees of access to real-time and accurate information by combining the internet and the phone in a unified application. The system has also increased accountability and transparency within the health services.
- The project has demonstrated the significance of rural telecommunications to rapidly strengthen disease and disaster surveillance and response in communities, even in remote areas such as the Andes. For example, access to a telephone has resulted in 4,269 reports with 28,296 cases being submitted electronically from just one area. Using the telephone to both give and obtain information could, therefore, prove beneficial to other sectors, including education, justice and agriculture.
- The project showed the need for training and a flexible time frame even to introduce the use of extremely simple ICT applications. For example, initial users were slow to make use of voice mail. This was due in part to the fact that people were not used to this service. Some were also concerned with the security of leaving such messages.
- A key factor was the role of a strong champion who could guide the project and help articulate its benefits to people who may not see the benefits of ICTs immediately.



Photo 3: Accessing the real time data reports

## Future outlook

- The project has been asked to expand its cover from 76 to 188 additional health facilities in two additional health areas – Lurin-Pachacamac-Pucusana and Barranco-Chorillos-Surco. The first of these is predominantly rural and the second predominantly urban. This request is dependent on the evaluation and development of a sustainability plan acceptable to the Peruvian Ministry of Health. In addition, the same technology and approach is now being used by doctors in the Peruvian Navy in areas along the Amazon and is planned for expansion to all Navy medical facilities in Peru.
- Voxiva is now looking to partner with development institutions in order to expand this programme to other countries to use the system for both health and education. Potential countries include Brazil, Rwanda, South Africa and India.
- In the USA, the Food and Drug Administration is now testing the same system used in Peru to monitor the US blood supply and the Defence department is using the system to monitor their small pox vaccination programme for military personnel. In addition the system developed in Peru is now being introduced in San Diego County and Washington, DC to link school nurses with local health departments

## Stakeholder Consultation

- **Voxiva Second and Third Quarter report 2002 for infoDev**
- **VOXIVA Grant Agreement** infoDev 10/12/2001
- **Extending the reach of the internet to support health and emergency services**, Dr. Pamela Johnson & Dr. Juan Rodriguez
- **A Voice Portal for Health: proposal submitted to infoDev** 01/06/2001
- **VOXIVA creates new application for technology serving public health** Paul Meyer
- **Profit? So much the better** Kinetz, K The international Herald Tribune 22/06/2002
- **Voxiva: The power of the internet, the reach of the phone.** Video excerpt from University of Michigan Business school case study, 'Innovation at the bottom of the pyramid' Produced by Casas, C & Lajoie, W. Spring 2003
- **Email communication with Pamela Johnson**, July & August 2003
- **infoDev Task Manager**, D Cotleard



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Photos for this case study provided by University of Michigan