Case Study: EHAS Peru

History

- 1999: Enlace Hispano Americano de Salud (EHAS) Peru was developed in Lima with the creation of two key structures:
  - A laboratory of digital communication technologies for low cost rural areas of Peru, with the Pontificia Universidad Catolica del Peru as its technology partner.
  - A communication servicies for health personnel in isolated rural areas provider center, with the Universidad Peruana Cayetano Heredia as the medical partner.

History

- 2002 – 2004
  - A pilot project was launched in the Alto Amazonas province of the Department of Loreto in Peru, to implement a solution for low-cost communications

Fig. 5. Alto Amazonas province, Peru.

The Alto Amazonas

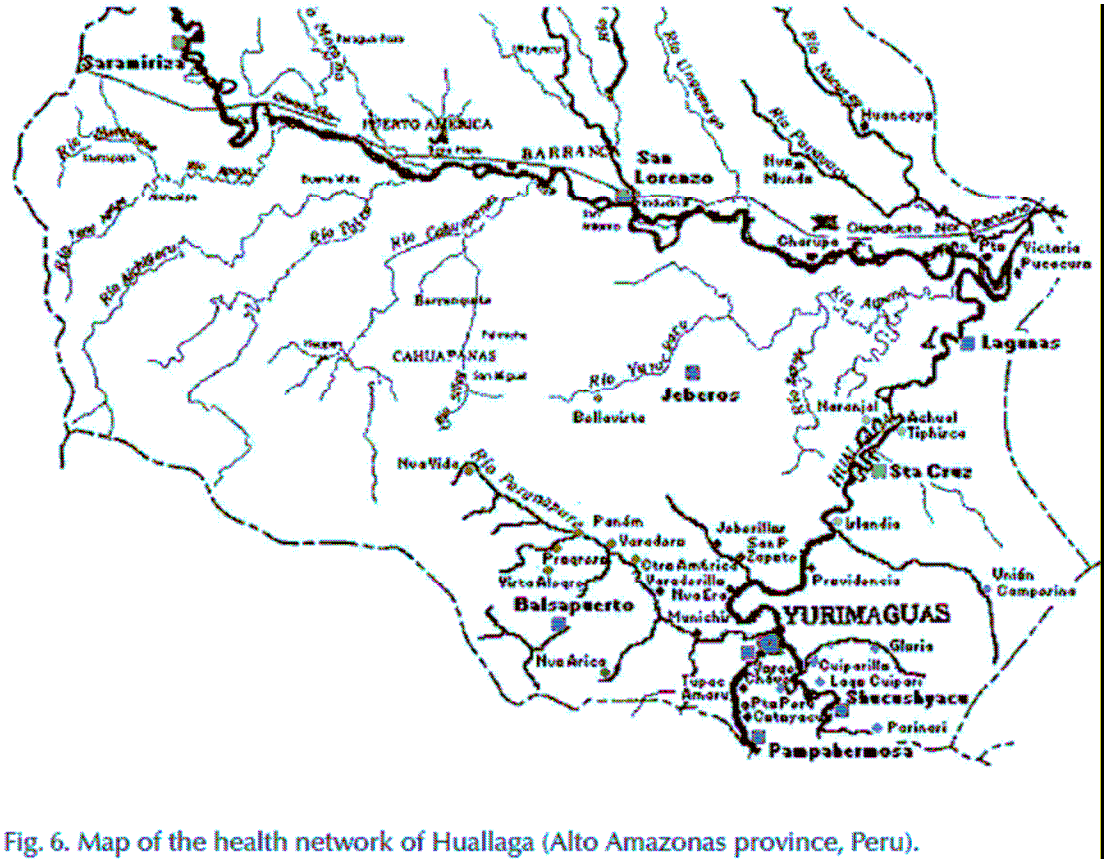


Fig. 6. Map of the health network of Huallaga (Alto Amazonas province, Peru).

The Alto Amazonas

- Barriers to the implementation of telemedicine in rural areas of developing countries:
  - Telephone networks and computers are scarce
  - Limited access to electricity
  - Deficient transportation infrastructure resulting in:
    - A lack of appropriate maintenance and control systems
    - Limited ability to afford expensive telecommunications and infrastructure
  - Poorly trained personnel

Rural Health Establishments

Many developing countries organize primary healthcare around two types of care centers – Health Posts and Health Centers:

- Health Posts or surgeries (HP)
  - Mainly located in small towns of no more than a thousand inhabitants
  - Rarely have more than one health worker
  - No telephone lines and poor road networks
  - Refer to HCs for:
    - Severe case referral
    - Pharmaceutical deliveries
    - Epidemiological management
    - Coordination of the general activities within the micronet

Rural Health Establishments

- Health Centers or polyclinics or ambulatory care centers (HC)
  - Headed by physicians
  - Have equipment for diagnostic tests, and sometime have hospitalization facilities
  - Have access to a telephone network
  - Serves as a reference establishment for several HPs
- HPs and HCs usually organized into networks, with the HC the reference point for several HPs. This network is a “health micronet”, the basic unit of the primary health system.

Rural Health Establishments

The EHAS Proposal

Martinez A, Villarroel V, Seoane J, del Pozo F. *Rural telemedicine for primary healthcare in developing countries*. IEEE Technology and Social Magazine 2004;23:13–22

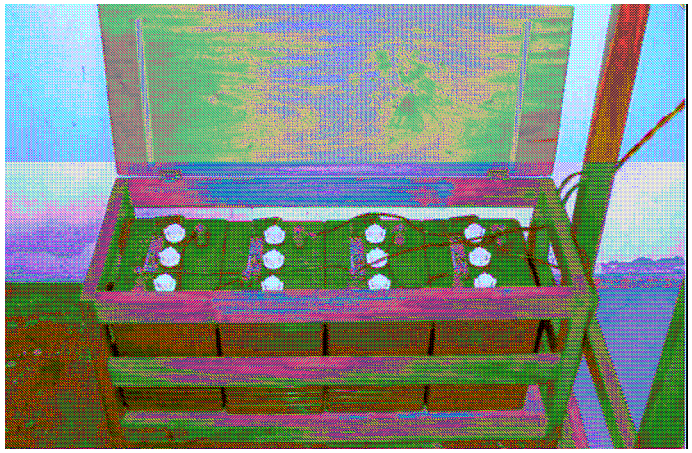
- A proposal to deploy telemedicine systems and services in rural areas of developing countries
  - EHAS Technology
  - EHAS Services

The EHAS Pilot Project

Question:

What various pieces of technology (i.e., hardware, software) were the used in the EHAS Pilot Project?

The EHAS Pilot Project



The EHAS Pilot Project

The EHAS Pilot Project

The EHAS Pilot Project

- EHAS Services
  - Distance Training
  - Electronic Publications
  - Access to experts and health information

The EHAS Pilot Project

Question:

What were some of the immediate benefits of the EHAS pilot project?

The EHAS Pilot Project

- Within the span of 9 months:
  - 93.3% of users consider that it is now easy and quick check in case of doubt, against 93.8% before saying it was impossible to install.
  - The average number of visits for diagnostic or treatment questions has risen 766%.
  - 95.2% of respondents said that the system was suitable for the training of health personnel in rural areas of the country.
  - The number of trips for the delivery of reports has reduced by 25%.
  - The time of transfer of serious patients has reduced by 40%.

The EHAS Pilot Project

- Cost-benefit study
  - The infrastructure and set-up costs per establishment come to US$4195
  - The estimated cost of the telephone bill (seven telephone lines shared by the 39 establishments) plus the system's maintenance and repair is US$704 / month for the entire communication system.
  - The total cost of the system will be recovered by the savings generated in 2.5 years.

The EHAS Pilot Project

Critical Thinking:

Do you see the EHAS Initiative as a sustainable project over time? Explain why or why not.

After The Pilot Project

Martinez, A., Villaroel, V., Puig-Junoy, J., Seoane, J., & delPozo, F. (2007). *An economic analysis of the EHAS telemedicine system in Alto Amazonas*. Journal of Telemedicine and Telecare, 13, 7-14.

- The net economic effect of the telemedicine program over a four-year period was clearly positive, amounting to annual net savings of US$320,126 (using a 5% discounting rate).

After The Pilot Project

Martinez, A., Villaroel, V., Puig-Junoy, J., Seoane, J., & delPozo, F. (2007). *An economic analysis of the EHAS telemedicine system in Alto Amazonas*. Journal of Telemedicine and Telecare, 13, 7-14.

- From the restricted budgetary perspective of the health network, the results also demonstrate that the additional operational costs (telephone and maintenance) introduced by the telemedicine system were lower than the direct cost-savings produced for the health-care network

After The Pilot Project

- The results from this first pilot experience allowed for to extension of the project in the following years to other establishments in the region.
- EHAS Peru has installed communication systems for voice and data in 90 of the 105 establishments in the area, with the help of the Ministry of Health (MOH), to serve a population of 160,000 inhabitants (of which 40% live in the city of Yurimaguas or around)

After The Pilot Project

- 2003-2005: EHAS installed 12 communication systems for voice and data (including IP telephony) in four health micronets from the Health Network South-Cusco: Urcos, Acomayo, Pomacanchi and Accha (in the Provinces of Quispicanchi and Acomayo)
- Service expanded to an estimated population of 115,000 inhabitants

After The Pilot Project

- 2007: EHAS, within a project financed by the Global Fund against Tuberculosis, Malaria and AIDS, installed communication systems based on long-distance WiFi technology in a total of 16 establishments on the banks of the Napo River (Maynas)

Current Project

- http://www.ehas.org/