



## EcoLapagos Project Progress Report

Report of activities in Puerto Barquerizo Moreno, San Cristobal Island, Galápagos, Ecuador.  
By Alfonso Tovar, December 2003

### Guayaquil

Nov 18<sup>th</sup>

Dec 1<sup>st</sup> to Dec 3<sup>rd</sup>

Dec 15<sup>th</sup> to Dec 17<sup>th</sup>

- The day after arrival I had a meeting with EasyNet sales and technical staff to inform them that we were going to change the current configuration of the radio repeater from “bridge” mode to “router” mode. I discussed with them the routeable IP addresses assignment, as well as the proposed network configuration for the Last Mile Service to be provided by us. I also explained the new IP map we were going to need for the two new sites to install, namely, Colegio Ignacio Hernández, and Hospital Oskar Jandl. We agreed on the network configuration and IP address assignments.
- On Dec 1<sup>st</sup> Kal and I had a tough meeting with José Manuel Villacis, EasyNet’s commercial manager. Our proposal was to offer them ownership and control of the Last Mile equipment consisting of one radio, two directional antennas, one omnidirectional antenna, and an exterior router, besides the mast on San Patricio hill. With this infrastructure, EasyNet would be capable of reaching any customer in Puerto Baquerizo using wireless spread spectrum technology. In exchange, EcoSage requested a free Internet connection for two public, non-profit institutions: Colegio Ignacio Hernandez and Hospital Oskar Jandl.

The final result of the negotiation is as follows:

- a) EcoSage will receive a 20% discount on the normal fee. Thus, the cost will be \$240 for each channel.
- b) EcoSage will pay for two 64K channels for 6 months. Therefore, the contract to be delivered to CIH and Hospital Oskar Jandl will be an exceptional 6 month contract only.
- c) EcoSage would like to receive this as a single 128K stream to distribute to both sites according to demand.
- d) EcoSage will remain the owner of the installed equipment and will lend it to EasyNet for as long as the ElecGalapagos contract is valid.
- e) I requested a legal agreement that will memorialize these points J. M. Villacis said he was going to work on that document and have it ready for us next week. To date we haven’t received such a document.
- f) I insisted on a meeting with a high executive in PacificTel. Mr. Villacis said he would try to set that up. He indicated that he would mention our request to EasyNet’s General Director Juan Carlos Merino.
- g) It might be necessary to obtain a legal representative in Ecuador so that legal documents can be signed. It might be necessary to donate all equipment to EEPG so they can sign any legal agreement in behalf of EcoSage. These items have not yet been done.



➤ Considering alternatives to the Internet connectivity provided by EasyNet, I met with Francisco Villacreses, TelcoNet National Commercial Manager, and Shirley Delgado, sales agent. TelcoNet is a Telecommunications/Internet provider. They use the SAT2 satellite from the SatMex system which connects to a router at a ground station in Texas. TelcoNet uses a provider called “Cedar” or something similar. From the structural point of view, the connectivity seems to be cleaner than EasyNet’s. Francisco went further into some technical details such as explaining to me that the satellite uses the C band, or is in an SSPC class -- or something like that. Afterwards he described how the Galapagos end of the link would be configured:

- a) 2.4 meter dish for a stream of up to 384K down, 128K up, pointing directly to the router in Texas.
- b) One 10 Watt HPA (What is an HPA?)
- c) Satellite Modem FADATA
- d) Cisco router 160 or 170 (Is that the model number?)

In the case of a commercial partnership, the participation scheme could be as follows:

- a) Both partners share costs in the satellite and last mile infrastructure.
- b) TelcoNet puts forward its license as a satellite communications operator, an ISP, and to cover the last mile service as well.
- c) TelcoNet sells some amount of bandwidth to EcoSage and EcoSage resells to any customer.
- d) There can be agreements regarding commercializing the service, owning the infrastructure, etc.

I made clear that we were not interested in the participation scheme. Rather, we only want to buy the service. However, I thought of our friend Christian and I told Francisco that I knew of someone that might be interested in a commercial partnership with them, although without too much capital to invest. He then expressed that rather than a commercial partnership, that kind of association would resemble an employer (TelcoNet) – employee (ServiCom) situation, with some relevant advantages for ServiCom.

We moved then to a more concrete scenario and what is relevant for the EcoLapagos project: They buy and transport all satellite equipment, we help them logistically on the island to find the station site and even to install it with their technical support, and we take care of the Last Mile service for our customers and even theirs by sharing EcoSage’s omni-directional antenna. They would provide all licenses of course. We can help them getting a manager for their system (Christian), or they can train someone.

Having covered these points, he requested more information about our potential as customers, our project, and other potential customers not linked with us, to make a feasibility analysis in terms of investment-profit. Having this information, he would provide us with a more precise answer about how much would he charge for bandwidth. Nonetheless, he would like to start with a minimum on the order of 320K of bandwidth.



It is remarkable that they said they sell 1:1 (unshared) bandwidth. I asked for the cost of a 128K digital line in Guayaquil, and Shirley told me they sell it for something like \$880, and \$550 for a 64K (In comparison, EasyNet sells the 128K, 2:1 service for \$810, and \$450 for the 64K, 2:1)

In terms of installation time, Francisco spoke of something like a two to three-week period. I am not sure he was considering with much accuracy the delivery time as well as the paperwork needed to begin operations.

## Galápagos

Nov 19<sup>th</sup> to Nov 30<sup>th</sup>

Dec 4<sup>th</sup> to Dec 14<sup>th</sup>

- e7 Public Audience.
- EEPG server upgrade and debugging:
  - Weather data logger activation.
  - Firewall activation.
  - E-mail activation.
- Modifications and upgrades to the MicroSolar project telecommunications infrastructure:
  - Installation of a second omnidirectional antenna on San Patricio hill site to be able to provide Internet connectivity to several sites.
  - Adjustments of Yagi (directional) antennas on San Patricio hill mast.
  - Repeater configuration changed from “bridge” mode to “router” mode.
  - Installation and testing of antenna and radio equipment at Colegio Ignacio Hernandez (CIH).
  - Installation and testing of antenna and radio equipment at Hospital Oskar Jandl (HOJ).
  - Lightning arresters installed and grounded at all sites (including Central Termica).
  - Steel cable installed on all antenna masts to increase rigidity to the structure.
  - Photos
- Upgrades and maintenance of instruments and data logger system installed at the Power Plant. Measurement device was installed at the newly re-assembled generator number 7. The system is now complete and working status is perfect.
- I met with Ingala's General Manager to obtain formal permission to use the San Patricio hill for the antennas. He advise me to make a proposal to Ingala such that it can serve as the basis for a Mutual Agreement that can go beyond administrations. That agreement would provide a long term permission for the mast in exchange for the community service it offers.



- I found out that all of us permanently involved in the project directly in Galapagos are eligible to obtain a temporary residency card. It is necessary to present a letter from the e7 that must briefly explain the project indicating the participation of EEPG, the local institution that would endorse our petition. This letter has to be addressed to Ingala and to the EEPG General Manager.

## To do:

- Obtain long term written permission from Ingala for the mast on San Patricio hill.
- Apply for a Temporary Resident card.
- Obtain a legal representative in Galapagos to sign documents on behalf of EcoSage, particularly, the Las Mile Provider conditions with EasyNet.
- Keep in touch with TelcoNet
- Keep in touch with Patricia Coloma, who will prepare and submit documents for EEPG private network telecommunications license.
- Keep in touch with Elizabeth de Coka, customs agent. Make contact with Ecuadorian consulate in the Bay Area, or the Ecuadorian embassy in Washington, to request more information on importing PV and solar equipment.
- Complete Internet connectivity in the computer lab at CIH.
- Complete Internet connectivity at Hospital Oskar Jandl (completed by Christian Villagómez Dec 29)

## Photos

- Following are several photos describing the infrastructure that has been installed to date.



Repeaters on San Patricio Hill



Energy monitoring at Colegio



Computers online at Hospital



Antenna at Hospital pointing to San Patricio Hill



Antenna at Colegio pointing to San Patricio Hill

Additional photos of these installations can be seen at <http://www.ecolapagos.com/photos/200312/>.

Realtime data monitoring results can be seen at <http://www.ecolapagos.com/data/>.