

# PLAN PUYHUAN

## SERVICE-LEARNING IN PERU



SOLARQUEST®



PLAN PUYHUAN IMPACT AREA

### EXECUTIVE SUMMARY

SolarQuest® copyright 2005

## PLAN PUYHUAN

### INTRODUCTION

Plan Puyhuan is a private initiative promoted by the Puyhuán Group whose purpose is to contribute to the integrated and sustainable development of less favoured rural communities located in the central highlands of Peru. The group has been working on the Plan since 1997 and, in 1999, chose the district of Molinos for the pilot initiative.

The Puyhuán initiative is oriented to research, design, and implement an integrated model for sustainable human development that will allow rural communities to achieve the social, economic, cultural, political, and technological development they need to improve their quality of life from their own worldview.

To achieve integrated sustainable development and improve the quality of life it is indispensable that productivity be increased. For this to happen, development must be based upon the innovative conversion of the resources controlled by the community into goods and services. Increased productivity in turn depends on an orderly and intelligent productive activity using new methods and technology.

The Puyhuán Group focuses on Information and Communication Technologies (ICTs) as important productivity tools for achieving sustainable development as well as for the design and development of new educational models. If ICTs are used properly and innovatively, they can help transform and restructure individual, family, academic and working environments in a positive manner, and significantly impact social, economic, cultural and political relations. Taking advantage of ICTs, particularly of the Internet phenomenon, new opportunities are being created whereby even remote communities can have access to information to facilitate innovative educational and capacity building programs.

A pilot project was initiated in the community of Molinos (1,000 inhabitants), and in the community of Quero (500 inhabitants). In the near future the program is to be expanded to Curimarca (1,800 inhabitants) and Paltay (200 inhabitants). Curimarca and Paltay currently do not have electricity. It is foreseen that once these four communities of Molinos are interconnected through ICT facilities, they not only can benefit from the Puyhuan Model to undertake sustainable development initiatives at the local level, but also at the district and eventually at the provincial level.

SolarQuest was introduced to Plan Puyhuan in 2004 and asked to contribute its experience and expertise in solar energy, distance learning and human capacity building. To that end, a portable solar system, lighting and very energy-efficient computer were briefly demonstrated in Curimarca. The solar system, computer and LED energy-efficient lighting were then installed for an extended test at the ICT training facility in Molinos. The goal for 2005 is to extend this program to install a permanent solar system in the village of Curimarca and to provide distance education services to support the targeted communities' sustainable development initiatives.



SolarQuest® Demonstration Project, 2004

## PROGRAM PROPOSAL

SolarQuest® is proposing the installation of ICTs in the Plan Puyhuan targeted communities, and to implement a school-based community telecenter project combined with productivity-centered service-learning programs focused on locally determined sustainable development objectives. Proposed service-learning programs will be modeled after the successful MicroSolar Distance Learning Program implemented by SolarQuest® in the Galapagos Islands in 2004. (See page 4.)

The program will be implemented in two stages:

- Feasibility study: SolarQuest® and the Puyhuan Group will conduct a field survey to assess satellite and wireless connectivity service to the targeted communities in the Puyhuan region to determine appropriate telecommunications network infrastructure and location for two solar powered school-based community telecenters. The feasibility study will determine cost-effective connectivity service strategies and construction specifications for a wireless local loop (WLL) to serve the targeted communities from a central service point. Additionally, SolarQuest® will assess the capacity building requirements to be provided by the Puyhuan Group. The feasibility study will determine the scope of work and financing for the initial project development phase and expansion requirements, which are projected to cost in the range of \$200,000 including connectivity services, WWL infrastructure, local partner capacity building, two school-based telecenter service-learning sites, and operations for productivity-center, service-learning programs. The cost of the feasibility is \$50,000, and is to be completed within three months of authorization to proceed.
- Installation and Capacity Building: SolarQuest® and the Puyhuan Group will install two school-based community telecenters with computer server and workstations, solar energy power supply with battery backup, and connection to the Internet through the WWL or satellite infrastructure to a central connectivity point. Human capacity building will be conducted with local project partners and school-based telecenter operators, and will include professional development training for teachers in computer science and productivity-centered, service learning activities. SolarQuest® will provide development services for the development of a Community Informatics Committee and assist in the development of locally determined sustainable development objectives. The project will be completed within one year of authorization to proceed.

SolarQuest® will model the Plan Puyhuan project based on its successful MicroSolar Distance Learning Program in the Galapagos Ecuador, which is based on 6 years of field research and technology development in the ICT field. A description of the MicroSolar program follows:

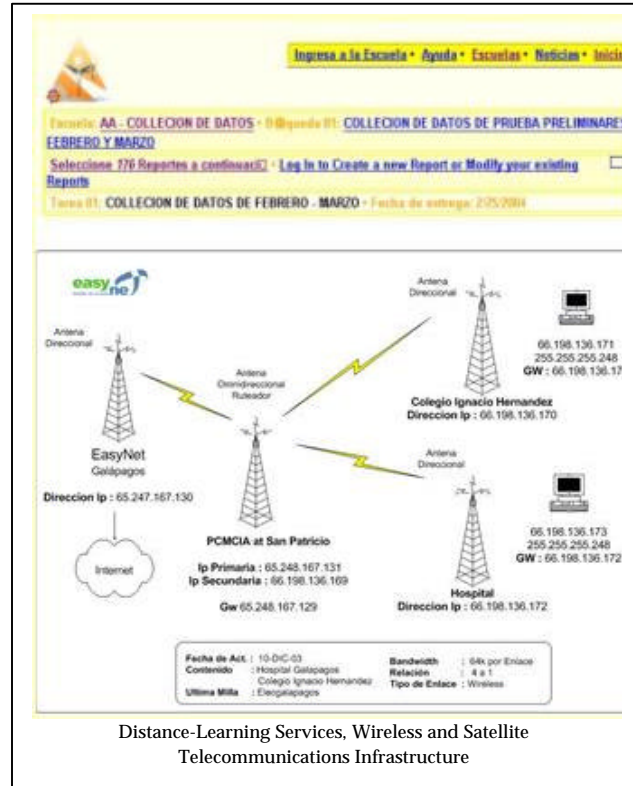
## MICROSOLAR IN THE GALAPAGOS 2004

The e7 Fund for Sustainable Development (“e7”) signed a memorandum of understanding in April of 2003 with the government of Ecuador to undertake a wind energy project in the Galapagos Islands that will generate approximately 1,800 kilowatts of electricity, displacing more than 50 percent of the electricity presently being produced by diesel-powered generators on the island of San Cristobal. (See <http://www.e7.org>) In a complementary initiative, e7 companies AEP, Ontario Power Generation and Hydro-Quebec funded the Galapagos Archipelago’s participation in the SolarQuest® Micro-Solar Distance Learning Program, where solar panels (photovoltaic systems) are installed in learning centers to power advanced information and telecommunications technologies (ICTs).

In 2004 SolarQuest® installed a satellite-connected Wireless Local Loop providing broadband Internet services to Colegio Tecnico Ignacio Hernandez (San Cristobal Island) and to Colegio Nacional Galapagos (San Cruz Island) to test the feasibility of training local knowledge workers for an information economy. SolarQuest® and the Ministry of Education and Culture then established the Action, Communications, Technology, and Science (“ACTS”) program in which students utilized remote and handheld data monitoring equipment to collect energy data for access by electrical engineers in Italy and the United States. Student data collection and analysis provided critical decision support services for the proposed wind energy project, and identified the potential for a \$5 million energy efficiency program to reduce 1.5 to 2 megawatts of demand on the Islands’ power grids.

The ACTS program demonstrated the feasibility to develop workforce skills and life-long career opportunities for an emerging IT sector, forge new international alliances, and through technology education reform in the Galapagos drive interdisciplinary scientific information and technological processes for an information economy.

While providing valuable research data for engineers planning an island-wide renewable energy project in San Cristobal, the ACTS program is demonstrating the capacity of local institutions to rapidly adopt advanced ICTs for economic development. Skills adopted and knowledge transferred with technical assistance from SolarQuest® under ACTS are directly applicable to remote environmental monitoring, data collection and management, and trend analysis required for advanced science research and the development of a global information economy based on science content.



## ABOUT SOLARQUEST®

SolarQuest® was established in 1998, as an educational program of EcoSage Corporation, and was incorporated in the State of Vermont in 2004. The mission of SolarQuest® is to provide high-quality, project-based experiential education utilizing renewable energy, broadband telecommunications, and distance education technologies. Since May 1999, the organization's primary emphasis has been the integration of learning opportunities between "deep rural" communities of developing nations and public schools in the United States. Since 1999, SolarQuest® has worked with governments in sub-Saharan Africa and Latin America under a partnership with White House Millennium Council and various departments of the United States government, including the United States Department of Energy, the State Department, and United States Agency for International Development, to pioneer new distance learning technologies for developing countries.

In May of 1999, SolarQuest® co-sponsored the President's Council on Sustainable Development National Town Meeting for a Sustainable America in Detroit. In collaboration with industry partners, including Intellicom and Electronic Data Systems (EDS), SolarQuest® provided a live web cast of the National Town Meeting events from self-powered, mobile internet café utilizing broadband satellite, and sponsored 21 youth at the event representing the Voice of American Youth for the 21<sup>st</sup> Century. In August of 1999, SolarQuest® co-sponsored a White House Millennium Council project to Uganda and Tanzania to install 100 solar energy systems in community centers, schools, libraries, and medical facilities in remote areas of the region, and conducted community focus groups on the topic of ICT development. In October 2000, SolarQuest® established a "deep rural" educational telecenter in Porvenir, Bolivia, in collaboration with the White House Millennium Council and American Electric Power (AEP). In 2001, SolarQuest® participated in rural Information and Communications Technologies (ICT) programs in Honduras, Guatemala, and Venezuela, and signed a Memorandum of Understanding with Hewlett-Packard Company (HP) to reconfigure the technical systems for remote telecenters under the HP World e-Inclusion program. In September 2001, SolarQuest® was selected to be the prime developer of the e7 Micro Solar Distance Learning Initiative to install remote telecenters in developing countries throughout the world. The Initiative is a utility sponsored research project to develop low-cost, low-power ICT systems for deep rural communities of developing nations.



From its inception, SolarQuest® has developed and implemented a distance education technology--the SolarQuest® Virtual Schoolhouse. The SolarQuest® Virtual Schoolhouse utilizes a simple outline format that is the basis of literacy education in most pedagogical settings throughout the world. The Schoolhouse has been utilized by the United States Department of Agriculture, the State of Vermont, the Government of Honduras, and a consortium of leading environmental colleges participating in North America Alliance for Green Education (NAAGE).

SolarQuest® is currently developing MicroSolar Distance Learning programs in the Province of the Galapagos in Ecuador, the village of Chendebji in Bhutan and the communities of Molinos (Department of Junin) in Peru. SolarQuest® is headquartered in Chelsea, Vermont, with operations in Santa Cruz, California.

**FOR MORE INFORMATION ONLINE**

SOLARQUEST®

<http://www.inetnews.org>

ACTS™

<http://www.ecolapagos.com>

e7 NETWORK FOR EXPERTISE ON THE GLOBAL ENVIRONMENT

<http://www.e7.org>

MINISTERIO DE EDUCACION Y CULTURA

<http://www.mec.gov.ec/>

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