

# Honduras: Solar Energy Bridges the Digital Divide

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*Solar panels have enabled the previously neglected and remote village of San Ramón, Honduras, to become the first community to be connected via solar power to the rest of the world through the Internet. This innovation will enable the population to dramatically increase their levels of education and overall productivity, which will ultimately result in a better quality of life for its 840 villagers. San Ramón has “gone global” as 11 computers wired to the Internet have begun operating. In addition to enabling computer use, solar panels support the operation of other technologies that are used in the learning process, such as TVs, video and tape recorders, digital cameras, scanners and printers. Technology has made this community and its schools more attractive to teachers and students alike, even though its potential remains to be maximized.*

## **A Path of Stones—A Pathway to Knowledge**

San Ramón, a village of about 840 people located in the hills above Choluteca (Honduras), is proof positive of the power of new technologies to leapfrog over traditional barriers to development. San Ramón, with support from UNESCO and Consejo Hondureño de Ciencia y Tecnología (COHCIT) and others, has become the world’s first solar power community hooked up to the Internet. Above and beyond the potential of the Internet and other less sophisticated technologies (e.g., television) to expand horizons beyond San Ramón and Choluteca, the results are interesting for a number of reasons.

First, the fact that solar energy has been the power source of choice says volumes about the status of San Ramón vis-à-vis public policy. To say that San Ramón is an isolated community may be an understatement. Access doesn’t come easy. Although located a mere 24 kilometers from a main thoroughfare, the journey up to San Ramón requires a good 45 minutes in a 4x4 all-terrain vehicle—and a strong stomach. There is no road to speak of. Rather, a path of stones, ravines, and otherwise tough conditions leads slowly upwards. It has been this lack of accessibility, coupled with the relatively low number of inhabitants, that has made the government less than anxious to extend the distribution network from Choluteca to San Ramón. At least not in the short to medium term. Per-unit costs as well as accessibility considerations meant that if power were to come to the village, it would have to do so by means other than the “traditional” methods at the disposal of the state and public policy. Among these, solar energy figured prominently.

Second, San Ramón, like many remote villages throughout the country, suffers from low levels of education, productivity and, in general, quality of life. It was a zero (on the scale of one to ten) according to its *cacique*, or leader, Don Jerónimo. Given its remoteness, the village could neither maintain teachers for its school (primary level only) nor benefit in a timely manner from a number of other public services—e.g., vaccinations. Aspirations also were low. Indeed, as one villager joked, “the moon seemed closer than Tegucigalpa.”

With the support of UNESCO and COHCIT, San Ramón started exploring the potential of alternative energy sources as a way to trek out of its darkness and isolation. In February 1999, and in the wake of Hurricane Mitch, solar panels were strategically installed throughout the village. This process culminated on July 8, 1999, when the President of Honduras Carlos Roberto Flores, inaugurated San Ramón as the first

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solar energy village of Latin America. Since then, the results and experiences of San Ramón have caught the attention of many, both within Honduras and beyond.

The energy generated through the solar panels powers a variety of community services. Included here are:

- ? five streetlights;
- ? six classrooms, each of which has its own electrical outlets for a TV/VHS, computer, or other pieces of equipment;
- ? a community center, also with outlets for fans, computers, TVs, etc.;
- ? an innovative classroom equipped with 11 computers, a TV, video and tape recorder, digital cameras, scanners, printers, etc.;
- ? a health clinic, including a heating and cooling system for water, storage of medicines and vaccines; and
- ? lighting within the village's church.

As of October of 2000, San Ramón has gone global, wired to the Internet through each of the 11 computers in its innovative classroom. These changes, literally, have given power to the people. On a scale of one to ten, villagers claim the quality of life has improved from a zero to an eight.

Governed by a local development council comprised of representatives from throughout the village, resources have been allocated, decisions taken, and activities prioritized. The use of new technologies to improve the quality of education has received considerable attention, both from village elders and across Honduran society. His Eminence, Cardinal Oscar Andrés Rodríguez recently lauded the project, as did the Vice-Minister of Education, Dr. Armando Euceda, who referred to the experience in San Ramón as the most promising in the country.

### **Pathways to Efficiency**

Although no hard data are available, a number of convincing arguments can be made for bringing technology to communities such as San Ramón. For one, technology—including TVs, VHS and computers—increases the “attractiveness” of school. This may be subjective, but it is no minor consideration. In a country plagued by low education attainment, where repetition and dropout run rampant, any “incentive” that keeps kids in school and channels their energies towards learning-related activities is likely to go a long way in reducing overall costs. Witness the volume of resources governments throughout the world lose due to repetition. (By one estimate, the total amount of resources the Inter-American Development Bank has invested in education over the course of the last four decades pales in comparison with the amount lost each year throughout Latin America and the Caribbean due to repetition.) Seen in this light, investments made in machines, software and training are likely to be recovered in a relatively short time-frame.

In much the same vein, and especially in a community as isolated and remote as San Ramón, technology increases the chances that teachers will actually show up for class and remain at the service of the village for years to come. Again, this is no small consideration. Students across Honduras receive merely 180 hours/year of class time (compared to 1,200 hours a year in industrialized countries), given high rates of absenteeism among teachers and other factors, including strikes (according to the OAS, anywhere from 10 to 40 days a year can be lost due to strikes). A formidable challenge thus is making better use of time actually spent in the classroom.

Technology has considerable potential for improving the quality of education. The options are many and run the gamut from the use of distance education modalities to increase access to students as well as to provide training for teachers, to the use of materials (e.g., CD-ROMs, videos, case studies) to supplement official curricula. And, in San Ramón, solar energy and other technologies have served to leverage more from the state. As of 2000, a basic education center operates in the village (grades 1 to 9; previous to this date, education was offered only through the 6<sup>th</sup> grade), as does a pre-primary cycle. Future plans include

the creation of the diversified cycle (grades 10 to 12). Technology also gives new meaning and substance to “lifelong learning,” opening new possibilities for learning to populations outside the formal education system, and may serve to motor small and micro enterprises (although the lack of access is likely to limit any real possibilities along these lines).

### **The Beginning of a Long Journey**

That said, the potential of technology has yet to be maximized. Technology offers neither a magic wand for improving the quality of education nor a means for short cutting the educational process. Technology can help inform, but it cannot “knowledge.” Knowledge results from using a series of intellectual and analytical tools to interpret information and make it relevant to a given situation. Considerable care needs to be taken in introducing technology into the educational process in that considerable distance separates information and knowledge. If technology is used and programmed as an add-on, something additional requiring extra time and effort from teachers, and is not integrated into the learning process itself, neither attitudes nor learning are likely to change. In fact, technology thus added on top of the learning process may do little more than trivialize education. As Claudio de Moura Castro, former Chief of Inter-American Development Bank’s Education Unit, convincingly argues, access to machines is only a part of the problem. The crux of the problem is how to get the education potential of the computer to take off. This, of course, is not something that can be left to chance—just as education, as a process and a public good, can’t be left to chance. Nor is it something that can left to the invisible hand of the market.

If San Ramón is to take full advantage of the doors technology opens, the state, in all its instances and in all senses of the word and despite all obstacles (including infrastructure), will have to have a larger presence in the community (this process has already begun). Issues of sustainability will have to be explored in detail, as will those related to cost-recovery. To wit, San Ramón’s local development council already has mandated user-fees for all activities not strictly related to the community. For example, villagers wishing to use the Internet to communicate with relatives beyond San Ramón must pay to do so. Issues of coordination also will take on added importance. COHCIT will have to expand its supervision and, if access and coverage of public policies such as education and health are to be increased, collaboration between San Ramón and respective Secretariats at the state, regional and municipal level will have to be deepened. The foundation for such collaboration has been laid and, if the experience to date is any indication of what the future holds, expectations should be kept high. It is in this regard that the experience of San Ramón may have the most lasting effects: serving as a catalyst for mobilizing communities around and in the name of the common good. Perhaps now a new road?