

Renewable Energy in the DPRK

“About ten years ago in my hometown in New Jersey,” explains Victor Hsu, National Director of World Vision International’s program in the DPRK, “I began to notice that the school zebra crossing signs were powered with solar panels. Each time I drove by the school I would wonder when the DPRK would begin to adopt the use of solar energy.” Four and a half years ago, the Democratic Peoples Republic of Korea (or DPRK, the official name of North Korea) reported its intention to do just that. At a May 2004 Asian Energy Security Workshop convened by the Nautilus Institute, the DPRK delegation’s paper on energy planning incorporated renewable energy sources.¹ The paper described the DPRK government’s plan to promote the development and utilization of solar energy, the construction of passive and active solar buildings and a “test-solar building for fifty households in Pyongyang.”

NGO-DPRK partnerships to explore renewable energy began even earlier, most famously with the Nautilus Institute-DPRK windmill project beginning in the late 1990s. For the last several years U.S. NGOs have been helping their partners in the DPRK test the viability of solar power in a number of venues. For example, Christian Friends of Korea has recently installed a solar-powered water-distribution system in one of the hospitals they support. They have also introduced International Aid’s “Lab-In-a-Suitcase” at multiple facilities, which uses a portable solar panel to recharge the battery pack that runs diagnostic equipment.

Partnerships between the DPRK and the private sector and regional governments will likely be necessary to secure the sustainable development of the DPRK’s energy system described in the DPRK’s May 2004 paper. David von Hippel and Peter Hayes of the Nautilus Institute, in a paper on potential DPRK energy strategies, note that early investments in renewable energy might include small hydro turbine generators and wind turbines.² Until such large-scale investment occurs, however, NGOs may continue to play an important role working with the DPRK to experiment with solar power and other renewable energy sources. In Volume II Issue One of the NCNK Newsletter, Victor Hsu describes how the inclusion of solar energy has been integral to the successful collaboration between World Vision International and the DPRK in a village in Yongtan County.

A DPRK “Shangri-la” Powered by Solar Electricity **By Victor Hsu**

In 1988 Bongsu Church -- the first Protestant Church built in Pyongyang since the end of the Korean War -- opened its doors for the first time. The following year the Korean

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Christians Federation asked if my organization, Church World Service, would provide a generator for the brand new church. A generator would enable parishioners to enjoy air conditioning during the hot summer months when the temperature can reach 85 degrees Fahrenheit and above. I suggested to the church officials that we install solar generators from China. However, lacking experience with solar power, they preferred the more familiar diesel-powered generators. But the seeds of interest in alternative sources of energy were just starting to grow. Soon after this exchange I learned that the DPRK was investigating the possibility of using another form of renewable energy -- windmills.

I have been visiting the DPRK for two decades in many different capacities, most recently

as the DPRK National Director of World Vision International (WVI). Over this time, I have learned, as have many of my colleagues from the United States and around the world, that knowledge-sharing and knowledge transfer enhance the benefits of humanitarian assistance. There is increasing evidence that the DPRK seeks out and appreciates this form of international cooperation.



Since 2000, various technical cooperation and assistance projects have involved NGOs and professional organizations in Europe and North America, especially in the field of agriculture and medicine.

World Vision International (WVI) has been active in DPRK since 1995, when a serious humanitarian crisis hit the country. In 2006, shortly after becoming DPRK National Director at WVI, I suggested to the DPRK-Korean American Private Exchange Society (KAPES) that they designate a province where WVI could concentrate its humanitarian interventions. Subsequently, after discussions with the DPRK Mission to the UN, North Hwanghae Province was designated as a World Vision International humanitarian zone, and we were asked to work in Dochi-ri. An ambassador at the DPRK Mission to the UN, Ambassador Han Song Ryol, told me he could envision the province becoming a DPRK Shangri-la!



Dochi-ri is a small sprawling farming community nestled in hilly terrain in Yongtan County, just about a two hours drive south of Pyongyang. A river runs through this community of 12,000 residents and the farmers enjoy a man-made reservoir. This village traditionally grows corn but has begun soybean cultivation as part of the DPRK agricultural program to replace corn with the more nutritious soybean. Like many “ris,” or villages, in the DPRK, Dochi-ri is served by a clinic and a nurse.

Itinerant doctors visit the village

for non-routine medical interventions. The clinic, the houses, the small primary school and the kindergarten rely on a sporadic electricity supply.

WVI agreed to provide Dochi-ri with an organic fertilizer plant, the first of its kind in the DPRK, a potable water and sanitation system, a bakery and a soymilk processing facility. We also agreed to upgrade the clinic, replace the roofs of the clinic, kindergarten and primary school, and replace the school furniture. All these projects have been completed over the last 2 years, with the exception of the potable water system, which will be finished by mid-2009.

The 12, 000 Dochi-ri residents are happy with all of the various renovations, but they are most excited by one innovation: the experiment with solar generators. After careful research and planning among the DPRK partners at the national and local level with the help of a Chinese company, WVI agreed to provide solar generators to the school (5kWh), the clinic (3kWh) and the home of the village engineer (2kWh). These were purchased in China and installed by Chinese technicians.

Chinese technicians and American engineers – the latter coincidentally in Dochi-ri to drill wells and install the water and sanitation system – trained the local people’s committee managers on the use and maintenance of the generators. Our engineers have visited Dochir-ri several times over the past two years after the generators were installed and were happy to respond to all of the villagers’ technical questions. *WVI engineers* complimented our North Korean partners on the quality of the maintenance. Whenever the solar generator issue comes up in the conversations, our technicians assure the managers that good maintenance of the batteries will ensure at least the minimum of their five-year life span. Our engineers have no doubt that this will be the case given the track record of the DPRK’s technicians. DPRK technicians are known for the meticulousness and thoroughness of their approach to learning.

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The village technician's home with its constant supply of electricity is now the constant envy of the "ri." In fact, the villagers are requesting WVI to supply each of their homes similar generator. When I visited Dochi-ri in September 2007 the engineer invited the WVI delegation to his home to show us how he is able to have lighting in his house and enjoy TV and music from his CD player. Though he could not speak a word of English, his smiles and a halting "Thank you!" were enough for us to know how the solar panels are making a real difference in the life of this farming community.

A year after the first generators were installed, Dochi-ri villagers determined that they needed a generator to power the water tower for the school. The decision to "go solar" was easy, based on the positive experiences with the first three generators. A fourth solar generator was installed in 2007, and it now provides water for the school.

In the past two years, the cost of solar panels has soared, and China is investing heavily in manufacturing them. We hope to see a similar effort to design more powerful, maintenance-free and efficient batteries to enable us to continue to bring solar power to Dochi-ri and other villages in the DPRK.

The experience of the community has been overwhelmingly positive especially with regard to this low-maintenance but highly efficient technology. Now Dochi-ri has ready access to organic fertilizer for its crops, a water sanitation system, an upgraded school, kindergarten and clinic, and bread and soymilk for the children's lunches. With electricity in the school and clinic, Dochi-ri is beginning to become the Ambassador's vision of a DPRK Shangri-la!

1. "Options for Rehabilitation of Energy System & Energy Security & Energy Planning in DPR of Korea," presented by the DPRK Delegation at the Asian Energy Security Workshop, May 12-14th 2004. Paper downloaded December 31, 2008 at <http://www.nautilus.org/archives/energy/AES2004Workshop/DPRK.html>. (For a list of participants in the Workshop, including the composition of the DPRK delegation, click here: <http://www.nautilus.org/archives/energy/AES2004Workshop/participants.html>)
2. David von Hippel and Peter Hayes, "The DPRK Energy Sector: Current Status and Options for the Future," Downloaded on December 31, 2008 at http://www.nautilus.org/archives/pub/ftp/napsnet/special_reports/DPRK_Energy_Status&Options1.pdf

Photos, Victor Hsu. Photo One: Solar panels for the school. Photo 2: Solar panels for the clinic.

To learn more about World Vision International's work in the DPRK or to make a contribution, please contact Michael Brown at michael.brown@worldvision.org.au.

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