

# The Grupo Fénix

*2007 Progress Report*



Written by Grupo Fénix members:  
Noel Dekking, Julio Angulo Gareta, Susan Kinne, and Amanda Baran

# Table of Contents

Mujeres Solares de Totogalpa and Solar Cookers	3
Centro Solar	4
Don Marco's Photovoltaic Workshop	5
Tienda Verde	6
Microloans	7
Workshops and Courses	8
Reforestation	10
Bio-digestor	10
CIPPER	11
Continued Support	11
Final Note	13

## Mujeres Solares de Totogalpa and Solar Cookers:

2007 has been a break out year for the solar women of Totogalpa as they received national recognition for their work with solar cookers by the Nicaraguan government and country-wide media outlets. With funding from the Body Shop Inc., the Nobel Fund, and the prize money from the Ministry of Energy, the women plan to continue their environmental conservation and education work.

### **1. Estelí Design Competition:**

- ✓ First place finish in a solar cooker design competition held by Universidad Nacional de Ingenieros and the city of Estelí.
- ✓ With the \$5,000 award grant and additional funding from The Body Shop Inc. the women built 22 solar cookers for citizens and schools in Estelí. The event was celebrated at city hall with a two day workshop hosted by Nimia Sánchez, president of the women's group, CJ Colovito, Grupo Fenix volunteer, the Mayor of Estelí, and some of the solar women. The workshop allowed the women to teach the recipients the uses, maintenance and science of solar cookers.
- ✓ The event was nationally publicized in an article written by volunteers Noel Dekking and Julio Angulo Gareta and published in El Nuevo Diario, one Nicaragua's most popular newspapers.

### **2. National Renewable Energy and Conservation Competition:**

- ✓ Second Place prize and recognition by the National Ministry of Energy for Las Mujeres Solares de Totogalpa's work with solar cookers, environmental education and conservation.
- ✓ Received cheque for 8,000 Córdobas (\$450) to continue with their community development and solar cooker work.

### **3. Engineers for a Sustainable World – Research and Design:**

- ✓ Engineering students from Cornell, Berkley and MIT spent three months working on research and development of solar cookers through the Engineers for a Sustainable World program.
- ✓ Students came up with various design improvement and cost efficiency suggestions, as well as designed and built their own solar cooker as an exemplary prototype.
- ✓ Prototype construction and design instructions, as well performance test results, were electronically documented for use by Grupo Fénix interested organizations.

### **4. Creation of volunteer housing matrix:**

- ✓ To avoid any biases in the volunteer housing selection process, which represents an income of \$50 per month, an objective set of rules was created to ensure equal opportunity access.

### **5. Continuation of Mujeres Solares work and meetings:**

- ✓ As of November, 2007, meetings have been moved to the Centro Solar and have continued with an above 50 percent attendance rate.
- ✓ Work on the cocinas for Estelí was carried out by members: Nimia López Sánchez, Rumalda López López, Maria Alejandra Sánchez, Elia Maria Perez, and Reyna Isabel López Rizo.

## **6. Solar Cooker Repair Team:**

- ✓ Funds for projects raised by students from Cornell, Berkley, and MIT universities through the Engineers for a Sustainable World program.
- ✓ The Solar Cooker Repair Committee is comprised of Maria Alejandra Sánchez, Rumalda López López, Reyna Isabel López Rizo, Nimia López Sánchez, Kenia Damaris Perez, Elia Maria Perez, and C.J. Colavito, all of whom volunteered to undergo training and begin solar cooker reparations.
- ✓ All solar cookers have been visited and the needed repairs documented.
- ✓ Team attended workshop delivered by Marcio Perez to develop Mujeres Solares carpentry skills in preparation for repairs.
- ✓ Budget has been written, money has arrived from Managua and repairs are planned to begin November, 2007.

## **7. Education and Scholarship Committee:**

- ✓ Funds for scholarships donated by course participants and volunteers Lori Hanna, Brian Bellamy and George Haselton. Approximately \$2,000.
- ✓ The Education Committee is comprised of Rosa Amalia Martinez, Bertha López, Glenda Isabel López, Mayra Azucena López, and Nury Banesa Diaz of Las Mujeres Solares de Totogalpa and international volunteer C.J. Colavito, all of whom volunteered to administer the scholarship.
- ✓ The committee has established a set of rules for the selection process of the scholarship so as to avoid any biases or unfair advantages.
- ✓ Applications are to be past out the week beginning November, 19, 2007 and then collected for review and reward process one months later.

### **Planned Progress:**

- Moving the workshop into the Nobel Solar Production Centre.
- Buy new tools and materials for building solar cookers.
- Continue with design improvements.
- Create a marketing campaign for solar cookers.
- Continue community outreach and education of solar culture.
- Promoting the women's group, as well as their work with and use of solar cookers.
- Develop artisan shop to sell homemade arts, crafts, food and coffee.
- Develop plan for export of dried foods, solar coffee, etc...

## **Centro Solar:**

After resolving some construction material shortages at the beginning of the 2007 - and thanks to the hard work of the solar women, their family members, volunteers, and a local construction team - work on and around the Nobel Solar Production Centre should be completed before the end of the year. Plans to build a large PV system to power the Nobel Solar Production Centre, and then to move Don Marco's Solar PV workshop and the Solar Cooker workshop into the building are in the works.

### **1. Nobel Solar Production Centre:**

- ✓ Installed: Traditional style roof, tiled floor, interior and exterior walls, locally made doors and windows, locally made solar panels, solar powered lighting and electric system, replacement solar panel for water pump, and the temporary sign.
- ✓ All work done as a result of cooperation between community members, local experts and international volunteers.

## **2. Security System:**

- ✓ Security plan for building as of November, 12, 2007 has been designed by Noel Dekking, Don Marco, Antolina Ortega Hernandez and C.J. Colavito. It is currently being put into place. Funding provided by Wally Malei's Church

## **Planned Progress:**

- Inauguration planned for December, 12, 2007.
- Grant proposal for massive electrification of the centre, and the subsequent moving of both solar photovoltaic and cooker workshops into the building has been written and awaiting response.

## **2. Centro Solar Property:**

- ✓ New fruit trees have been planted, cage structures to support organic plants have been built, grass and weeds cut, walkway built, and organic gardens maintained.
- ✓ All work done as a result of cooperation between community members, local experts and international volunteers.

## **Planned Progress:**

- Guard/Water-pump house has been planned; adobes are to be built in November.
- A larger sign for the Solar Centre and Nobel Solar Production Centre
- Large gate and pavement for entrance way
- Research for grants and funding to support continued construction of buildings and facilities for the Centro Solar.
- A larger sign for the Solar Centre and Nobel Solar Production Centre
- Construction of gate and pavement for entrance way
- Research for grants and funding to support continued construction of buildings and facilities for the Centro Solar.

## **Don Marco's Photovoltaic Workshop:**

Marco's workshop has continued to build solar panels and install photovoltaic systems throughout northern Nicaragua. It has also acted as a renewable energy training centre, educating both Nicaraguans and international volunteers in the construction, installation and maintenance of solar panels. Marco and Susan have recently come to an agreement that will see the workshop officially join forces with Grupo Fenix by becoming a financial partner in the CIPPER project. CIPPER is the creation of a formalized NGO division of Grupo Fenix.

## **1. Panel production and installation:**

- ✓ Continued as per market demand.

## **2. Yo Si Puedo Project:**

- ✓ The workshop has been working with Yo Si Puedo by installing PV systems at schools located in the mountains of rural Nicaragua. This is to provide light and electricity for adult education programs that can only be given at night after the regular work day is done.

## **3. Training Nicaraguans and international volunteers:**

- ✓ Volunteers and locals Nicaraguans alike have been trained by Marcos and Mauro Perez in their PV panel production techniques.

## **4. Research and development:**

- ✓ Continued research for the production of cheaper and more efficient panel construction. Continued market research for potential cliental and partnership.

## **Planned Progress:**

- Integration of the workshop into a formal and financial partnership with Grupo Fenix through the creation of CIPPER.
- Construction of solar panels for further electrification of Nobel Solar Production Centre.
- Possible move of workshop into Nobel Solar Production Centre.
- Don Marco, Martin Rolletschek, and Noel Dekking are researching low wattage panel production for potential partnership with Light Up Costa Rica. Could provide an annual demand of 50 to 100 small panels.
- Further development of a marketing campaign.

## **Tienda Verde:**

Having been a long time dream of Grupo Fenix to develop a way to pay back the hours and hours of dedication put forth by Las Mujeres Solares de Totogalpa, to say that creation of Tienda Verde was a big success in 2007 is an understatement. The effort was realized in great deal due to the devotion and enthusiasm for the project by Grupo Fenix volunteer Charlotte Ross.

### **1. Creation of Tienda Verde:**

- ✓ The Tienda Verde is both a motivation and way to reward the hard work of the Soar Women of Totogalpa without the need for money. As an incentive to each woman's continued dedication to the Solar Center and its future, the Tienda Verde is a store containing mostly donated goods which can be bought with the work hours that they have accumulated since November 2005. With her own bankbook in hand, each member arrives on the second Saturday of each month to shop for goods such as school supplies, clothing, shampoos, toys, and even solar cookers. The opening of the store offered a way to celebrate and repay the large effort each of these women has made to the future of Sabana Grande.

### **2. Acquisition of support funding and item donations to ensure store provisions:**

- ✓ Personal item donation on the behalf of Grupo Fénix staff, their families, Dayton University group, and SEI course attendants, Engineers for a Sustainable World volunteers, and other interested individuals have provided the store with lots of great items as wells as financial support.

### **3. Transfer of job responsibilities to a local Nicaraguan:**

- ✓ Kenia Perez, a Sabana Grande local and member of the women's group, has taken over the management of the bank/work-hour accounts. Antolina Ortega Hernandez, another member of the women's group, will continue with the purchasing and acquisition of goods for the store.

### **Planned Progress:**

- Researching sustainable sources of income and goods to maintain a steady flow supplies for the store.
- Creation of a suggestion box or book so that the store items better reflect the desires of the women's group.

## **Micro Loan:**

As an organization, Grupo Fenix is always striving to create projects that are not only sustainable, but also equally beneficial to the stakeholders. The creation of the Micro Loan program by Charlotte Ross enables women of Las Mujeres Solares who do not have the facilities to benefit from the volunteer home-stay program to take out a micro-loan for the acquisition of the required services.

### **1. Creation of the Micro Loan:**

- ✓ This has been an important addition the organization because it helps to avoid situations of inequality. Each member of the women's group has access to the income generated by housing a Grupo Fenix volunteer (\$50 per month). However, as not every member possesses the conditions of security and comfort in her home needed to house a volunteer, this opportunity was limited to a minority who repeatedly benefited from this cultural and monetary income. Since the founding of the Micro Loan for housing improvements or additions, this has become a more equal system. Women who have never before housed a volunteer and who are active in the GF projects are given preference in the selection process for loans of up to \$150. With this amount or less, the Solar woman can make the needed improvements on her home. Because they gain access to the next volunteer opportunity, the borrower will automatically repay the loan with the \$50 rent each month. After the loan is repaid in full the member is free to earn the money from housing or simply make use of her new space as she sees fit.

### **2. Implementation:**

- ✓ The program's first candidate, Elia Maria Perez, took advantage of the micro-loan to build an addition onto her home the last week of June, 2007. Since then, Elia has already paid back her micro-loan and is currently receiving an income from her second home-stay volunteers.
- ✓ Three more candidates have taken out the micro-loan for home improvements or additions and will be set in queue to receive a home-stay opportunity upon completion of their respective projects.

### **3. Transfer of job responsibilities to a local Nicaraguan:**

- ✓ Nicaraguan Grupo Fénix staff members, Antolina Ortega Hernandez and Erika González Garcia, have assumed the responsibilities associated with new loan applications, maintaining ongoing loans, volunteer housing implications the closing of loans after repayment.

### **Planned Progress:**

- Permanent and continued attention to outstanding loans, repayments, and project proposals is required for the micro-loan project.
- Advertising volunteer opportunities with Grupo Fenix is a critical variable to the sustainability of the micro-loan program.

## **Workshops and Courses:**

The solar culture courses remained an essential aspect of Grupo Fenix throughout 2007 for a number of reasons. Courses provide the opportunity for hands-on experience and a theoretical background to individuals interested in renewable energy. They are an excellent opportunity for cultural exchange between the solar women and course participants. They also provide a much needed source of income for the organization, which is used to pay our employees, as well as additional home-stay income opportunities for Las Mujeres Solares de Totogalpa.

### **1. 2007 Courses:**

- ✓ **Solar Culture Course I:** An intensive week long course in January that provided participants with practical skills and a theoretical background in both photovoltaics (PV) and solar cookers, as well as cultural and ecotourism experiences of Nicaragua. Participants built PV battery chargers, a solar dryer, experienced a residential PV installation, and covered the respective theory for each aforementioned hands-on activity.
- ✓ **Alternative Spring Break Solar Experience course:** Organized by GF employee Page McClean was held in March as an option for students looking for a more educational getaway. Four participants.
- ✓ **Minnesota/ Costa Rica/ Nicaragua Semester Abroad Course:** Organized in participation with Miguel Karian, this course offered a three day theoretical background of solar cookers, photovoltaics and renewable energy installations.
- ✓ **Cornell University Solar Cooker Course:** Provided practical skills and theoretical background for solar cooker construction, use and maintenance. Took place in March. Six students and one teacher participated.
- ✓ **Dayton University and ETHOS course:** Provided a course that satisfies the Service Learning Opportunity to engineer students at Dayton University. Took place in May. Nine students and two professor participants. Course provided practical skills and theoretical background for solar cookers and battery chargers; photovoltaic installation theory; and ecotourism experiences.
- ✓ **Solar Culture Course II:** An intensive week long course in August that provided participants with practical skills and a theoretical background in both photovoltaics (PV) and

solar cookers, as well as cultural and ecotourism experiences of Nicaragua. Participants built PV battery chargers, a solar cooker, assisted in a PV installation at the Nobel Solar Production Centre, and covered the respective theory for each aforementioned hands-on activity.

- ✓ **Solar Energy International:** A week long course in November that provided participants with practical skills and a theoretical background in photovoltaics (PV), solar cookers and other renewable energy sources, as well as their applications in the developing world. Participants built PV battery chargers, two solar cookers, assisted in a PV installation at the Nobel Solar Production Centre, and covered the respective theory.
- ✓ **Adobe Work Brigade:** A course organized to teach participants the theory and practical methods for the construction of adobe buildings. This environmentally building technique uses age old construction knowledge and relies on locally abundant materials so as to limit stress on Nicaraguan forests. Participants will be making adobes that are to be used at the Centro Solar for the pump house/guard station.

**Dr. Richard Komp: Physical chemistry doctorate, 45 years of solar energy experience, president of maine solar energy association, owner and president of Sunwatt Corp. as well as director of Skyheat Associates. He's been working with Grupo Fenix since 1997.**

**Susan Kinne: 18 years of Nicaraguan development experience, Director of alternative energy sources program at the National Engineering University, where she has worked for 18 years. Coordinator and founding member of Grupo Fénix. Electro-mechanic and electronics technical degrees.**

**Marco Pérez López:**

**Mauro Pérez López: 99**

**Nimia López Sánchez:**

**Marcio Pérez López: years**

**Rumalda: Solar and soy cooking**

**Alejandra: Medicinal plants**

**Guadalupe González**

**Frederlinda**

**Nina**

**Laurie Stone: International program director for Solar Energy International with experience in renewable energy application in development settings.**

## **2. Improvements:**

- ✓ Grupo Fénix is constantly making changes and improvements to courses so as to keep up with technology, and also respond to the suggestions of past participants.
- ✓ Amanda Baran has joined the Grupo Fénix and will be working closely with course preparation and improvements
- ✓ Amanda updated Website, conducted a participant feedback analysis, created a Grupo Fénix contact list, and has translated documents and technical manuals so that they are available in both Spanish and English.

**Planned Progress:**

- Improved advertising campaign.
- More relationships with Universities.
- Continued course development and investigation, possibility of a bio-fuel course.
- Organising existing courses for 2008.
- Development of the month long Centre for Ecological Living and Learning semester abroad course.

**Reforestation:****1. Solar Mountain and Asociación por Desarrollo Rural Adventista (ADRA)**

- ✓ 14,000 indigenous species trees, including mahogany and local cedar, were planted on the Solar Mountain. The program was carried out in partnership with ADRA's work for food program, financed by USAID.
- ✓ Program was organized and carried out by local Nicaraguans, including members of Las Mujeres Solares de Totogalpa.
- ✓ Local forestry methods, such as underbrush utilized for dike irrigation, implemented to help with soil conservation.
- ✓ Local forestry methods, such tree spacing, tree competition limitation, and underbrush management implemented for forest fire prevention and support of stronger tree growth.

**2. Drip Irrigation and Asociación por Desarrollo Rural Adventista:**

- ✓ Edwin and Vidalia Perez teamed up with ADRA for a drip irrigation system that was used on agricultural production of tomatoes and sweet peppers.

**3. Local Agriculture:**

- ✓ Planting of local crops such as beans and corn on flatlands by community members for food production.

**Planned Progress:**

- Five year visioning session planned for Solar Mountain in August, 2008.
- Continued research for further forestry projects.
- Formalization of agricultural use of the Solar Mountain.

**Bio-digester:**

The bio-digester demonstration site at Don Marco's house is yet another example of alternative energy use. The methane captured is a clean burning fuel that can be used as a cooking alternative to fire wood, thereby limiting the reliance on already ravaged forest lands.

**1. Repair Bio-digester:**

- Using of Edwin González's home made push car, and the help of volunteers Charlotte Ross, Johnathan Janeway, and Martin Rolletschek, the bio-digester team collected enough manure this November to get the newly repaired bio-digester back up and running.

**Planned Progress:**

- Monitor bio-digester performance.
- Maintain bio-digester in working condition.
- Write bio-digester funding proposal and seek out project partner for Centre Solar.

**CIPPER:**

CIPPER is the Centro de Investigación, Promoción, y Producción de Energías Renovables. While a number of the projects and programs in this report are already functioning as part of CIPPER, one of our main goals is to transform the department into the official NGO division of Grupo Fenix.

**1. Defining CIPPER and Goals:**

- ✓ With the help of Amanda Bran, Nimia López Sánchez, Nina, Marcos Perez, C.J. Colavito, Jenny, Erika, the official ideas that CIPPER represents were constructed into a concise organization definition.
- ✓ Goals and visions for the organization were outlined by Grupo Fénix members. Increasing the communication network that enables exchanges between researchers, students, business and other organizations interested in renewable energy.

**2. Development of Workshop Electrification Proposal:**

- ✓ Lead by volunteer Julio Angulo Garetá, and with assistance by Grupo Fenix members Noel Dekking, Director Susan Kinne, Marco Perez and Nimia López Sánchez, CIPPER's first potential financial project was developed and proposed to REI for funding support.
- ✓ The project proposal includes an executive summary, an implementation timeline, available resources, required resources, two paid job positions, three volunteer placements, a well researched budget and rules for access to finances, and an institutional background for those new to Grupo Fenix.
- ✓ The document can now act as a starting point, if not template, for future CIPPER funding proposals.

**Planned Progress:**

- Register as an official NGO
- Promote small business developments that grow out of initial CIPPER project support.
- Community capacity building, especially of Las Mujeres Solares de Totogalpa, in terms of job skills, renewable energy knowledge and possible business opportunities.
- Continue with REI proposal; either implementing project if funding is accepted or researching other partners if not.

**Continued Support:**

Throughout 2007, Grupo Fenix continued to develop and realize renewable energy projects with its long list of partner organizations, businesses, universities and interested individuals. The search for new partners and supporters also yielded some great successes and ongoing relationships. The list of individuals who make the Grupo Fenix and its various programs possible is extremely long

and ever-growing, and while our appreciation to these individuals is immeasurable, for the sake of conserving document length a of list every individual simply cannot be included.

**1. Nobel Fund**

- 2006 Financial support for the Nobel Solar Production Center.

**2. Skyheat and Dr. Richard Komp**

- United States based NGO for the advancement of Renewable Energies. Dr. Komp has been our chief scientific teacher and advisor, and Skyheat the channel for receiving donations from groups and individuals.

**2. Falls Brook Centre and the Canadian Government**

- Continued support by sending a volunteer through Canadian International Development Association's Youth International Internship Program.
- 1999 Financial start up grant for landmine victims and solar workshop project.

**3. ADRA**

- 14,000 trees for solar mountain; drip irrigation system; fruit tree at Centro Solar.

**4. Body Shop Inc.**

- 2006 Financial support for continued education and research of solar cookers, as well as generation of employment opportunities.

**5. Estelí City Hall**

- Financial support for construction of solar cookers.

**6. Wally Malei's church name**

- Financial support Solar Workshop and Las Mujeres Solares de Totogalpa community projects.

**7. Solar Energy International (SEI)**

- Assistance with course design, and provision of special guest speakers for SEI course.
- Assistance with project proposal writing and search for funding partners.

**8. Dayton University Group and ETHOS**

- Support through course attendants and long term volunteers through semester abroad program. They have helped with solar cooker and photovoltaic research, as well as a solar autoclave. Financial support as well.

**9. Cornell, Berkley, and MIT universities and Engineers for a Sustainable World**

- Research and design support for solar cookers, solar dryers and design changes. Support through long term volunteer placements. Financial support as well.

**10. PROCESO**

- PROCESO has solar cooker organizations in five Central American countries and has existed for at least 18 years. We have been working with them for 10 years and they assisted in with our initial solar cooker projects.

**11. Proleña**

- Worked together to promote renewable energy and sustainable practices.

**12. Municipal Development Committee for Totogalpa**

- Municipal planning, project impact reporting, as well as offered advisory support for development programs in Totogalpa.

**13. FCC War Victims Reconciled and United for Peace/ Winds for Peace**

- Provided Las Mujeres Solares de Totogalpa with leadership workshops.

**Individual Donors:**

- Diana Porter and Leonard Webb, Deborah Bruns and David Bunn, Jaime and David Deming, John Webster, and more...

**Grupo Fénix Advisers:**

- Richard Komp, Catherine Borrowman, Eric Fedus, Deborah Bruns, Uriel Carazo, Jack Parry, Dulce Guillén, Carolina Barretto, Padre Julio López de la Fuente, Nicolas Borgen and many more...

**Other NGO and Organization Partnerships include:**

- FCC War Victims Reconciled and United for Peace, Movimiento Comunal, ASODECOM (Association for Rural Development) and INPRUH (Institute for the Progress of Human Resources).

**The Grupo Fénix 2007 Staff:**

- Susan Kinne, Suyen Córdoba, Adalila Rizo, Isabel Solís, Máxima Medina, Karen Molina, Erika González, Marco Pérez, Guadalupe González, Antolina Ortega, Nimia López, Amanda Baran, Page McClean, and Karen Jespersgaard.

**Las Mujeres Solares de Totogalpa:**

- Nimia López Sánchez, Vidalia Pérez R, Adelina Sánchez, Carmen Gómez López, Mayra Azucena López, Maria Antonia Centeno, Guillermina Pérez García, Nury Vanesa Díaz, Frederlinda Pérez López, Rosa Amalia Martínez, Nolberta Díaz, Blanca Azucena Sánchez, Reyna Isabel López Rizo, Hilda Ivania López Rizo, Elia Maria Pérez, Elba Amparo Nolasco, Bertha López, Kenia Damaris Pérez, Yelba Maria López Laynez, Glenda Isabel López, Antolina Ortega Hernández, Guadalupe González Pastrán, Maria Alejandra Sánchez, Marbita González, Aura Verónica Inestrosa, Rumalda López López, and more to come...

**2007 International Volunteers:**

- Rod Macintosh, Nathan Curry, Charlotte Ross, Jagan Voora, Leanne Robinson, Anna Gebrosky, Andrij Fitzsimmons, John McGlynn, Jenny and C.J. Colavito, Charlie DeMario, Adela Pena, Nadia Siles, Martin Rolleschek, Rupam Singla, Jorge Padilla, Katie Kinsted, Noel Dekking, Julio Angulo Gareta, and Johnathan Janeway.

**Final Note:**

The Grupo Fénix staff would like to thank everyone involved with the organization, without whom, all of the positive changes that are being realized in our pursuit for a sustainable Nicaragua would not be possible. A special thanks goes to the community of Sabana Grande, Susan Kinne, Las Mujeres Solares de Totogalpa, Marcos Perez, Richard Komp, all our project support and funding organizations listed above, our wonderful and overworked staff, our incredibly dedicated international volunteers, our partner NGOs, associated universities, independent donors, course participants, and the government of Nicaragua.