

Sisters of Notre Dame de Namur Photovoltaic Project Fact Sheet

In 2003, the Sisters of Notre Dame de Namur initiated a photovoltaic program in Africa. Without electricity, clean water and any viable means for communication, life can be not only difficult but at times impossible. Our research led to experts in the field of harnessing solar energy.

The Power of the Sun

The photovoltaic project began by bringing electricity and pure water to three sites: Fugar and Awkunanaw in Nigeria; and Ngidinga in the Democratic Republic of Congo.

More photovoltaic projects have been installed in Kitenda, Lemfu, and Pelende in the Democratic Republic of the Congo in order to provide electricity and clean water to the hospitals, clinics, schools, and communities in these villages.



School children in Nigeria

Harnessing the power of the sun with solar energy panels and storing the energy in batteries has proven to be an effective means for producing electricity. The Sisters work daily with women, men, children and entire families in schools and hospitals in six countries in Africa. In some countries, electricity is a scarce commodity and clean water is non-existent. People can live without electricity, but life without clean water is impossible. Water-borne illness and other diseases devastate some populations. The mandatory daily task of collecting, purifying and filtering water for consumption is very labor intensive.

At Ngidinga, an x-ray machine has been installed. Electricity enables doctors and nurses to operate at night, to sterilize equipment regularly and to store medicine with 24-hour access to refrigeration. Emergency medical procedures are no longer dreaded; stored electricity (not kerosene or generators) gives confidence in care. The doctor, faculty, staff and students are also learning how to use the internet. Future dreams include internet links between clinics and specialists in Europe.

Teachers and school leaders are able to raise the level of education for all students because the children are able to read after 6 p.m. with electrical light in their dormitories. Internet links to schools and libraries give new resources to teachers and students. A cyber-café provides internet access for schools and communities. Technology, a dream of the people, is bringing adult education to the wider community.

Future Projects

The Sisters hope to bring solar power to three more villages in Democratic Republic of Congo and seven additional sites in Nigeria. Each site in Democratic Republic of Congo includes a health care facility and a school, with about 1500 students (primary and secondary) being served at these missions. The Sisters of Notre Dame de Namur offer health care programs for pre-natal and maternity care, with failure-to-thrive services as well as general health care treatments. On a daily basis at each site, the Sisters treat about 50 men, women and children who have no access to health care.

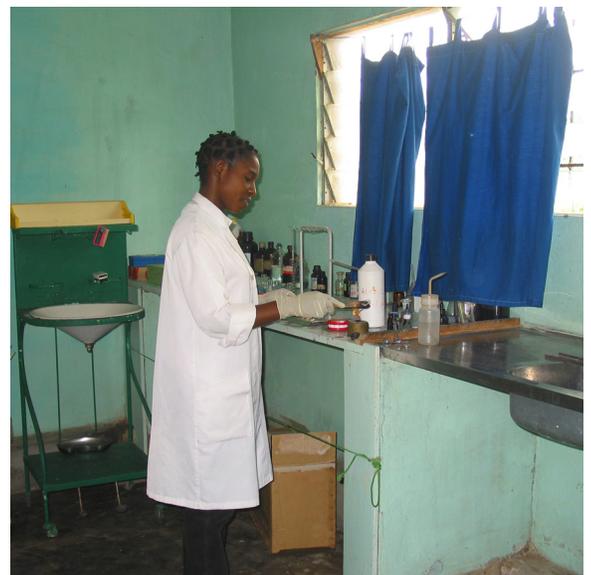
An alternative-energy project will provide a continuous and reliable supply of utility-grade electrical power. All related infrastructures, such as water pumping/purification, refrigeration, communications and lighting, need electrical power.

Conclusion:

Using the power of the sun saves lives. The photovoltaic project has the potential to reach innumerable undereducated, undernourished, underprivileged each day and to extend life possibilities and expectancy into the future for countless people.



Internet Café



Medical clinic

Key Facts:

- One photovoltaic system contains multiple components. Here is a sampling of costs for one system, which will help bring electricity and clean water to a school and health clinic in Africa for 25 years:
 - \$300,000 - an entire system
 - \$68,000 - an array of 43 panels
 - \$20,000 - DC/AC conversion unit
 - \$15,000 - water purification unit
 - \$12,000 - storage battery
 - \$10,000 - cables and connectors
 - \$2,500 - local construction hires
 - \$1,600 - one photovoltaic panel
- Because of the remote locations of our missions, engineering consultants from the United States have trained Sisters to repair and maintain these sophisticated systems on site.
- Photovoltaic solar cells are semiconductor devices that convert sunlight into electricity. Each photovoltaic site has at least 45 solar panels that collect energy from the sun. The energy is stored in a battery bank and disbursed from there, eliminating the need for costly, and in some cases dangerous, generators.
- Water is purified using a closed cylinder containing an ultraviolet light purifier which is attached to the outflow of water tanks from



Sister Angèle checks on the battery bank, an integral part of the photovoltaic system.



Water purification system powered by photovoltaic energy.

which schools, clinics, hospitals and residences receive water for their plumbing systems. Water is purified using 400 watts of ultraviolet light. Following this process, water is safe to drink. This will eliminate for many the daily task of boiling water.

- Many of the sites are already secured with walls and fences. Solar panels will be installed on the roofs of existing buildings and the battery banks will be constructed in small cinder-block structures about the size of a shed. The satellite dish and computer components are about the size of a briefcase and are inside the walls of the facilities where they are located.
- The prototype photovoltaic system was built in Ipswich, MA, near the Sisters' International Center. There, the Sisters learned how to build, maintain and repair the photovoltaic system when needed.



Installing solar panels



Batteries store electricity