

## INTRO:

Each year, thousands of Americans with schemes to change the world launch projects in developing countries. Some build schools and hospitals, while others install water pumps and assist battered women. But many discover that development -- and improving quality of life for the poor -- is much harder than it seems. For two young brothers working in Nicaragua, bringing electricity to an isolated region revealed complexities -- and assumptions -- about what the poor really want and need.

TRAX: As a boy growing up in Southern California, the whirling windmills on the horizon of Tehachapi, California captured the imagination of Mathias Craig. He revisited wind energy as a graduate student in civil and environmental engineering at MIT, where he concocted a business venture to electrify the Atlantic coast of Nicaragua with small-scale turbines. After receiving a small prize of start-up funding, he put his class project to the test in 2004.

ACT1 MATHIAS: Mathias talking about what interested him about wind energy

TRAX: Nicaragua's Atlantic Coast was both a likely and an unlikely choice for a rural electrification project. On the one hand, nearly 80 percent of the population lacked electricity. Craig's mother had worked as a linguist in the region for 20 years and Mathias visited her there many times with his younger brother Guillaume. But the region was also one of the most isolated and underdeveloped places in all of Latin America, with practically non-existent basic services, formal education, or infrastructure.

Some would say it was even an illogical place to do development work; to this day there are still hardly any other international organizations working there.

ACT2 GUILLAUME: Originally we chose to work here not out of a not out of a complex calculation of where was an appropriate place to start. It was the town in the developing world that we knew best.

TRAX: That's Guillaume Craig, the co-founder of blueEnergy, their non-profit organization headquartered in Bluefields, Nicaragua. Guillaume lives in Bluefields and directs the project on the ground, while Mathias operates out of San Francisco.

When they began, the brothers knew that what little electricity was available came from mostly from diesel generators donated by the World Bank and other international groups. But the Craigs noticed that most generators broke down with no one who knew how to fix them, and were abandoned and replaced by the Bank every few years. One community received six generators in 20 years; the most recent one lasting only six months. When oil

prices shot up in 2008, many communities could no longer afford the fuel.

So small scale renewable energy installations – mainly hybrid wind and solar systems – seemed to make sense. Though the initial costs are high – more than \$15,000 for a complete system – maintenance costs are far lower than a generator. To date the NGO has installed 8 hybrid wind and solar systems in 6 communities on the coast.

The Craigs put the first turbine up in one month, and expected to install several more in a short period of time. But the plan to bring light and change the lives of communities along the Atlantic coast didn't unfold quite as expected.

MATHIAS: We knew it would be hard, but we didn't appreciate all of the subtleties.

AMBY Boat sounds

TRAX: It's difficult to get out to the communities where blueEnergy works. Progress comes slowly when you have to transport everything (concrete, parts, turbines) by panga (outboard motor boat) on the open seas. Communication tough. No phones, can't afford a satellite phone.

ACT GUILLAUME: Technology is great, development is great but when you're working in communities where there's practically no standard education, practically no government institution providing any basic services, no roads to get to these places, we're talking about the bottom of the pyramid of development.

AMBY: Battery charging room (under)

This is Monkey Point, a community two hours from Bluefields by boat, there are XXX solar panels, wind turbine producing 2 kW of energy. Local people manage the turbine and battery charger. blueEnergy paid for the bulk of the installation costs, but the community has to make small contribution to encourage ownership.

Community members say the arrival electricity has altered their routines, allowing them to work and study at night.

ACT GEORGINA SPANISH: Before we were using candles. Everyone did. Now it's better that we have light. I use it to cook, make the bed in the evening. The children study.

TRAX: But then there's television. Television and telenovelas are what many villagers want as soon as the lights go on. International volunteers have complained to the Craigs that this is not the kind of development they envisioned bringing to Nicaragua. [\[I WILL](#)

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ACT MATHIAS: We were thinking about energy production, not the end use of the electricity. We had a lot of intellectual debates about it, but then made a conscious decision not to try to manipulate the end use. It affected people's morale a bit. Like why working so hard to get soap operas out there?

TRAX: But community members see it differently.

ACT WAYNE: Since blueEnergy came and bring the system to us here, it develop a lot because also the children them could come and watch TV and develop their minds even with the one word or one letter of the alphabet.

TRAX: With time the Craigs realized that the tech was really a very small part of the work. Most of it is education, training, awareness, and capacity building. Health, education, and literacy are all at very low levels. Brothers discovered electricity alone couldn't solve problems.

International volunteers now are sent to teach people to read, because sometimes no one in the community can read a manual. Others tackle the social aspect: how to get communities to use the technology.

ACT GUILLAUME: We have gone from thinking we were going to be renewable energy rural electrification technicians to being an organization that has holistic approach, with a capacity building department, a community relationships dept, enviromental dept. Isolated efforts in isolated rural communities don't work. Technology falls apart without education.

TRAX: blueEnergy has also moved into water issues because children who may have light are still dying of diarrhea. Installing low tech water filters. Have they lost their focus? Would like to have a partner with expertise in water issues. But for now, have to do water, education, literacy on their own because there are so few other orgs in the region.

ACT GUILLAUME: I guess we were naïve enough to come in and try to start a development project from nothing, but we're not naïve enough to think we can do anything on our own.

TRAX: Refrigeration may be another next step for a community like Monkey Point.

ACT HERVE, VOLUNTEER: . If we can bring something, have to find out what they need it for. Here [at Monkey Point] ice making machine then they could sell their fish. If you want people to keep using energy, they need to have direct interest in project.

TRAX: But it's a big jump from the current energy installation to a bigger one that could support a fridge/freezer. Plan is to build manufacturing base for wind turbines, but that is coming along very slowly and requires many other pieces of development (education and training) before it will be viable.

They expect to be here for 10-15 years more. Realized that development and improving people's lives comes very slowly if you want it to last.

ACT MATHIAS: Something on taking the long view on development, better to go deep and narrow....

For The World, I'm Eliza Barclay in Monkey Point, Nicaragua.