

# Urges transition to renewable energy

## LATIN AMERICA

Interview with Pablo Bertinat, researcher of renewable energy sources

“We must ensure that energy policy be patrimony of the entire population”

**Pablo Bertinat** is a professor and researcher of renewable energy sources at the Rosario campus of the National Technological University of Argentina and member of the NGO Ecologist Workshop of Rosario. For more than 20 years, he has advised social movements across the continent on energy projects.

**Juan Nicastro, a Latinamerica Press, contributor,** interviewed Bertinat about the results of the COP21 and the urgent need to increase the use of renewable energy sources and discontinue using fossil fuels. Bertinat provided central considerations of Latin America reality and warned about the desired transition process to effectively the health and the rights of the territories and peoples be respected.

**What do you think about the outcome of the 21st session of the Conference of the Parties to the UN Framework Convention on Climate Change (COP21) held in December 2015?**

COP21 left us with many concerns, especially due to inaction, lack of coordinated or agreed upon action to advance towards the change we need. We urgently need a



Pablo Bertinat / Personal archive

“We must make this transition due to the weather emergencies we face.”

transition to actually use less fossil fuels and more renewable energy, and also an efficient use of energy. We need to stop relying on oil, gas and coal and move to non-conventional renewable sources that are sustainable. We must make this transition due to the weather emergencies we face. Global climate change is the major social and environmental problem we face as a species. And one of the main causes of global warming and climate change is the use of fossil fuels. Globally the situation is very serious. We rely 80 percent on fossil fuels and in Argentina by more than 90 percent. But this change cannot happen in just any way.

**What has been the development of renewable energies in the region?**

The progress is very uneven. Latin America is a little less reliant on fossil fuels compared to global data, but it has many differences, interesting cases such as Uruguay’s initiatives, or complicated cases such as Argentina’s, where we are unfortunately above the world average in terms of fossil fuel use. Our solar and wind energy use does not reach 1 percent of total energy produced.

In Latin America, the largest production of renewable energy comes from hydropower, dams, which are very controversial because, although they may be considered renewable energy sources, they have had strong negative impact because of the characteristics of the projects. The percentage of use of non-conventional renewable energy sources, such as wind, solar and biomass, is still very low, except in the case of ethanol production in Brazil or the use of firewood in Central America. But both are troubled by the impact on health, land use and the environment.

### **Is researching new technologies the key to the transition?**

No, the problem of energy is not only a technical problem. It is a problem that has to do with socio-political, economic and mainly social issues due to the impacts being generated by the search for energy sources in the continent. The impact of the current energy system on communities and the environment is very large, especially because of hydrocarbon exploitation. We must also remember that the use of renewable energy sources can also have a strong impact.

We need to address the issue of energy with a complex approach. If we cannot stop thinking of energy as a commodity, it will be very difficult to build a new energy reality. If energy is only a commodity, there will be a lot of interest in obtaining energy without analyzing the real needs of people. In a continent with a serious problem of inequality, we need to view energy as a tool to improve the quality of life of people, to redistribute wealth and move towards another model of society. This is why the processes of decommodification, deconcentration, decentralization of power, besides the kind of sources used, are so important.

There is the danger of going into an energy system with many renewable sources but managed by transnational companies, a very concentrated system, and even a system that produces negative social and environmental impacts, not as big as fossil fuels, but very serious. In the case of large hydropower centers, such as Belo Monte in Brazil, which has a large social opposition, though it is a renewable energy source, the social and environmental impact is very high because of the size and characteristics of the project. The issue is not only the renewability of the source but how it is used.

### **Are you aware of specific experiences of production of renewable energy by grassroots organizations, communities or citizens that are worthwhile to make known?**

There are many experiences, worldwide and in Latin America, at the home, schools, community levels. They are very important small scale examples because of everything they offer in terms of learning and how they generate sovereignty. There are, for example, small hydropower projects

networks made by cooperatives in southern Brazil. The MST [Landless Workers' Movement] in Brazil has training schools for the development of small hydropower centers and solar heaters. Another example comes from Argentina: we are working near Rosario, in a small town, in a venture to develop a network of distributed renewable energy generators. We produce solar and wind energy by connecting to the low voltage grid of a cooperative. It's a pilot project that demonstrates the feasibility of such technique.

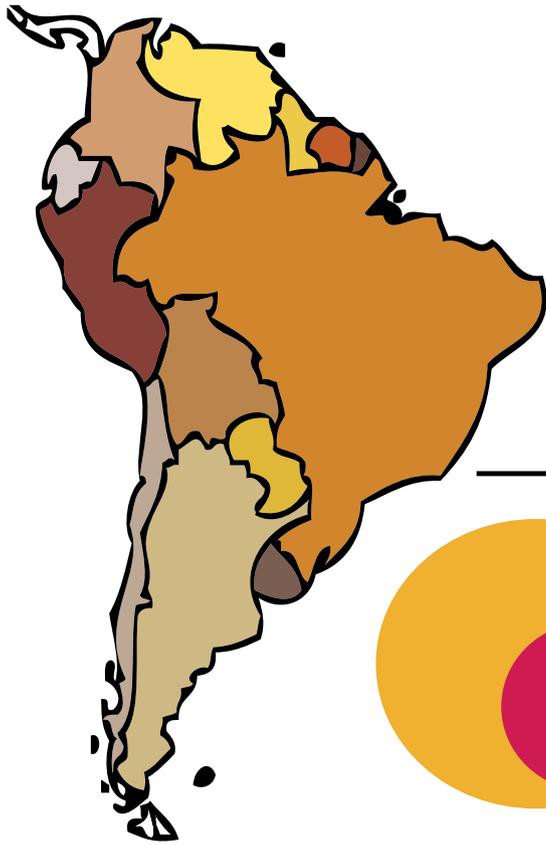
The energy crisis is part of the crossroads we are at in this model of society, its inequalities and injustices. A few years ago, I was very moved when I participated in meetings on gender and energy, coordinated by women's groups who analyzed the relationship between the fact of being women and forms of energy production. It was a sign of the breadth and potential that the energy debate has to understand the world, how much it transverses issues. There is an unequal distribution of energy, unsustainable projects, such as dams or the use of firewood that have a larger impact on women. When building a dam, companies offered compensation to people, and men quickly accepted, women showed more attachment to places, and when evictions occurred the most affected were women and children. Or when cooking with biomass, the health impact is stronger on women, who cook in poorly ventilated rooms. This shows that the energy problem is much more than a technical issue.

### **What prospects do we have for developing renewable energies that do not adversely affect the rights of communities?**

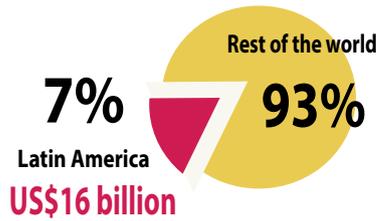
I have hopes for the development of energy policies at the local and community level. In a continent like Latin America, where urbanization is growing more, thinking about energy policies, taking ownership of policies and not delegating them, but taking charge to implement energy solutions where we live, discussing what is consumed, how it is consumed, and how we can generate alternative energy, is, for me, a desirable path and the feasible path to pursue. This would allow communities, municipalities and even provinces to discuss energy policies with the State, and not to just be subjected to these policies. This is an interesting path to take in the road to another energy reality.

We need democratization of energy policies, which are currently dominated by very technical talks, abstracted away from people. The people are those who should have the power to decide on these issues. We must focus on the needs of the people and from those needs think about transition to renewable sources of energy. We must ensure that energy policy does not depend on two or three "specialists" but be patrimony of the entire population. There is still time, there is much to do. It will be a difficult transition, but we have the tools to achieve this, if we deepen the debate and rely on concrete local experiences. □

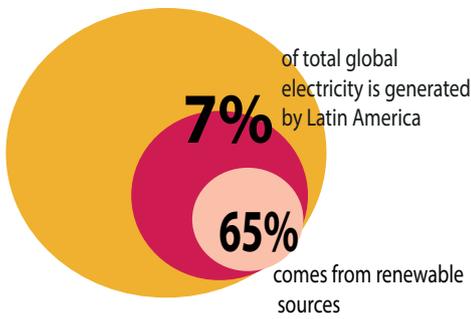
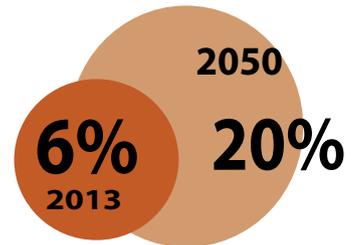
# CLEAN ENERGY IN LATIN AMERICA



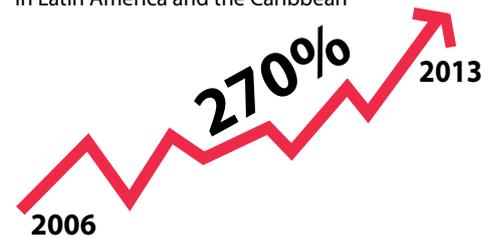
Global investment in clean energy-2013



Electricity of the region that comes from solar, wind, biomass or geothermal energy



Growth of the renewable energy capacity in Latin America and the Caribbean



## Non- hydro renewable power \*2013

Country	Share %	Generation Gigawatt-hour	Investments Billion US\$ 2006-2013
Costa Rica	31	3,952	1.7
Nicaragua	31	1,442	1.6
Brazil	15	45,815	96.3
Uruguay	10	745	22
Chile	8	6,509	7.1
Mexico	5	13,469	11.3
Peru	2	4,532	3.4

\*Solar, wind, geothermal, etc.

Source: WWF Internacional, Green Energy Leaders : Latin America's Top 5 in Renewable Energy, November 2014.

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## GUATEMALA

Louisa Reynolds in Guatemala City

# Renewable energy projects bring light to rural communities

Indigenous women get empowered learning how to weld and assemble lamps and solar panels.

In September 2013, Catarina Mejía Toma, 46, and Isabel Torres Medina, 43, two Mayan Ixil women who had rarely ventured beyond Xeputul, one of the most far-flung villages in the highland municipality of Cotzal, in the Northwestern department of El Quiché, boarded a plane for the first time in their lives and traveled to India.

The two women are illiterate and neither of them speaks Spanish nor English. When they arrived in India after a grueling two-day journey, they were taken to the Barefoot College in the village of Tilonia, Northern India, where they would spend the next six months learning how to assemble solar panels and lamps.

Founded by social activist Bunker Roy in 1972 and based on Gandhian philosophy of promoting self-reliance in rural villages, the Barefoot College aims to empower rural people, especially women, by teaching them practical skills, such as the use of solar power, that will help their communities to break the poverty cycle.

Lessons began at 9 am in a large hall and they learnt by example, copying their instructors' work. Learning how to weld and assemble electrical parts did not come easy to them.

"Sometimes we got told off when we assembled a lamp and it didn't work. We had to do it all over again," Torres told *Latinamerica Press*, speaking through an interpreter. "Sometimes we burnt our hands and it really hurt."

When training sessions ended at 5 pm, they retired to large communal dormitory that they shared with women from different nationalities, to rest until dinnertime. Adapting to Indian cuisine was part of the culture shock.

"We missed our corn and our tortillas," says Torres.

Mejía and Torres were chosen to go to attend the Barefoot College course, which is funded by Indian cooperation aid, by Semilla de Sol, a local NGO that promotes community-based renewable energy projects.

Once they returned to their village, the two women set up a workshop where they assembled solar panels and lamps for



Indigenous Maya Ixil women and men participate equally in the maintenance of solar panels. / Semilla de Sol

each of the 30 families in the village. The parts were donated by Barefoot College and Enel (Ente Nazionale per l'Energia Elettrica), an Italian-owned company that runs the nearby Palo Viejo hydro-plant, paid for the import tax.

During the early 1980s, Cotzal, together with the neighboring municipalities of Nebaj and Chajul bore the brunt of a brutal onslaught against the Mayan Ixil population unleashed by former dictator Efraín Ríos Montt (1982-83) in an effort to drive out the Guatemalan National Revolutionary Unity (URNG) leftist guerrillas.

Mejía was ten years old when her older brother was burnt alive by soldiers. He was one of the 200 innocent civilians who were slaughtered by the army in the municipality of Cotzal and her family members were among the thousands of people displaced.

More than three decades after the massacres of the Ríos Montt dictatorship, the dire conditions in the Guatemalan highlands that gave rise to the conflict in the first place have barely changed and 86 out of every 100 people in this predominantly indigenous municipality continue to live below the poverty line. The tiny village of Xeputul doesn't even have a health clinic and there's no public transport, which means that villagers have to walk for 5 kilometers to get to Cotzal.

### The light arrived

But the arrival of electric energy has ushered in a series of

transformations. “We used to live in darkness. All we had were candles and *ocote* [a resinous pinewood that is used to obtain fire] and sometimes our houses would catch fire,” says Mejía.

The US\$8 a month that families used to spend on candles is now spent on food and other basic necessities, and school children have adequate lighting to do their homework in the evenings.

“We’re proud of the fact that rural women with barely any schooling are involved in this kind of project,” says Baltazar Cruz, mayor of Cotzal, who has pledged to donate municipal land for the construction of a Guatemala’s own Barefoot College, which will open its doors in early 2018 to women from Central America and the Caribbean and will provide training workshops in Spanish if Semilla de Sol manages to source the necessary funding from international donors to run the project. The college would admit 24 women per semester.

Ten Guatemalan indigenous women have completed the Barefoot College course and four new “barefoot engineers” are due to return from India on Mar. 17.

Many men in rural areas, however, don’t share the mayor’s enthusiasm for the project and in some villages men have prevented their wives and partners from leaving the community in order to attend the course. The impossibility of finding a relative or neighbor to look after their children during their absence has also been a problem.

In Xeputul, some households have also refused to contribute towards the \$100 monthly salary that Mejía and Torres are supposed to receive for the maintenance of the solar panels as most of the villagers are small-scale coffee growers and they are experiencing financial hardship as a result of a coffee rust epidemic in the region.

“In some cases, they [men] don’t acknowledge the work that these women are doing. Machismo still rules,” Mario Hernández, director of Semilla de Sol, told *Latinamerica Press*.

Since a micro hydro-power plant was inaugurated in the village of Batzchocolá, in 2014, when night falls, this community, as well as the neighboring villages of La Laguna and Viziquichum, glow in the dark like three small clusters of light amid the dark silhouette of the mountains.

The 90 kilowatt hydropower plant provides electricity for 161 households in the three villages. Each household pays a fixed tariff of \$5 a month plus \$0.19 per kilowatt used, in order to pay the salaries of the three local youths

that Semilla de Sol trained as technicians and who earn \$100 a month, as well as maintenance costs.

“Communities can have their own hydro-plants; it’s not just something that large companies can do. We have great resources such as the rivers but we don’t take advantage of them and then large companies come and exploit them,” Miguel Cruz Cobo, president of the Community Development Committee (Cocode) and coordinator of the Batzchocolá hydro-power project, told *Latinamerica Press*.

The three communities now have street lighting and women have taken up weaving in the evenings after finishing their chores, as an extra source of income.

### Dreaming big

Access to electric energy has allowed the three villages to dream big. With a donation from Telus, a Canadian-owned call center, Batzchocolá now has a technology center with ten computers, where high school students learn information technology and basic English. Teenagers typically work in the fields from 7 am to 3 pm and then attend classes from 4-6pm or 6-8pm.

Viziquichum is in the process of setting up a cardamom dryer and this year Batzchocolá set up its own carpentry

workshop, funded by the Latin American Energy Organization (OLADE).

Large-scale hydropower is a highly contentious issue in many of Guatemala’s rural communities due to its environmental impact as well as what communities perceive as the unfairness of companies exploiting local resources for urban areas located hundreds of

kilometers away to enjoy the comforts of electric energy, when they are forced to live in darkness as transmission lines have not reached their remote villages.

The development projects that revolve around the Batzchocolá micro hydro-plant have been set up by a committee that includes community leaders, private sector representatives and government officials.

According to Hernández, the idea is for corporations to ease tensions by working with communities rather than ramming through *megaproyectos* without their prior consent.

“We understand that companies act according to their own interests but people also want a better future for their children. The problem is that sometimes companies try to buy people’s will rather than working towards meeting the communities’ needs,” says Hernández.

However, in Xeputul, not everyone was happy with the idea of Enel paying for the import tax for the components

*“We used to live in darkness. All we had were candles and ocote [a resinous pinewood that is used to obtain fire] and sometimes our houses would catch fire.”*

— CATARINA MEJÍA TOMA

used to assemble the solar panels. Critics point to the environmental damage caused by the Palo Viejo hydro-plant — flooding that has threatened subsistence crops in the nearby village of Santa Avelina — and believe it is wrong, on principle, to accept any compromise with the company.

Guatemala currently has seven community-managed micro-hydro plants: four in the highland department of Quiché and three in the northern department of Alta Verapaz.

Hernández explains the key ingredient for these projects' long-term success: "A great deal of organization is needed for the project to be sustainable. You need to be business-

savvy because the project shouldn't be a burden for the community; it should be a tool for social and economic development."

Although these projects have succeeded in some of Guatemala's poorest and remotest communities, Hernández points out that this is not a one-size fits all strategy. For instance, a community-managed wind farm inaugurated in 2001 in Punta de Manabique, in the eastern department of Izabal, was burnt down by local drug traffickers, which illustrates the challenges of implementing such projects in communities that have been overrun by organized crime. □

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## ECUADOR

*Luis Ángel Saavedra in Quito*

# Alternative energies; ¿are they sustainable?

The arrival of electricity improves living conditions in indigenous communities, but generates other needs that have an impact on their culture and the environment.

**T**he implementation of alternative energies in indigenous communities is viewed as ways that are friendly to the environment and make an effort to conserve it. However, the uncontrolled use of this energy could lead to the creation of an energy market that is favorable to electric power companies, in which case this alternative energy would only spearhead the penetration of traditional energy.

The arrival of electricity to a community has always been seen as the arrival of progress. It has been said that the advancement of civilization is directly related to the rate at which the laying of power lines takes place. Universal literature has described these moments very movingly, but has never questioned the source of this energy nor the cost that it represents for the communities or the environment. For certain, electric energy has been defined as clean energy, regardless if it comes from enormous generators operated by a combustion process derived from oil.

The origin of this energy is being questioned now that the ecological debate has moved forward, even when it comes from hydroelectric plants. What are the environmental cost and the cost to those communities that have been left without water to pursue their agricultural activities? What are the costs for damming a river? Who is the beneficiary of this industry? These



The use of solar energy has not reduced the use of gasoline powered generators in the community of Sarayaku. / José Miguel Santi

are some of the questions being asked by environmentalists.

Just as many are the examples of how hydroelectric companies have infringed upon the rights of the communities, or of how small villages have to obtain electricity from unstable sources, electricity that is generated by motors, while passing above them is the electric grid carrying electricity to cities or centers where natural resources are being exploited.

In Ecuador, there is now a deeper analysis of this debate after the implementation between 2004 and 2007 of a project called Basic Services of Local Initiative for Ecuadorian Amazon (Servicios Básicos de Iniciativa Local para la Amazonía Ecuatoriana-SILAE) conducted under the auspices of the European Union. This project was aimed at providing electricity service to the entire Amazon area through the creation of rural community enterprises, in coordination with the then

Development Council of Nationalities and Peoples of Ecuador (Consejo de Desarrollo de los Pueblos y Nacionalidades del Ecuador-CODENPE). This resulted in the creation of four rural enterprises and broadened the scope of the project to another similar project called EUROSOLAR that took place in Bolivia, Paraguay and Peru.

### The Sarayaku Experience

One of the experiences of SILAE was implemented in Sarayaku, a Kichwa community in the Amazon that is known for waging resistance against the oil industry and for being defenders of their territory.

The start of oil extraction activities and the subsequent process by the community to defend their land intensified their contact with the Western world; and with this contact some families began to bring in electricity generators, TV sets, audio and video players. “We started to have noise,” says José Miguel Santi, a member of the communications team of Sarayaku, to *Latinamerica Press*.

Electricity started to position itself as an alternative to improve living conditions in the community, but the use of gasoline powered generators was in contrast with their opposition to oil extraction activities. This brought on the idea to install solar panels, something that was proposed by SILAE. A system was installed in 2005 that was able to provide 12 volts to each family, enough to maintain a light bulb and a radio going for a maximum of three hours.

A larger capacity system was installed later to provide electricity to an information technology center in order to have internet connection that is used by secondary and university students who take distance learning programs.

The Sarayaku community assembly decided to install these panels free of charge and also provided the training to technicians to be in charge of repairs in case of break downs, in this way there would be no need to depend on outside personnel, being that the nearest community is eight hours away traveling by canoe and their fees cannot be afforded by a family.

Despite all this, the use of solar energy has not reduced the use of gasoline powered generators because contact with the Western world has meant that the population starts to feel other needs, such as the refrigeration of products. Although the sale of liquor and beer is prohibited, are appearing stores selling ice-cream, soft drinks and juices, which use gas powered refrigerators, something that has the same impact as gasoline powered generators.

“The real problem is the presence of gasoline powered generators that not only have an impact because they generate

noise and smog, but in a way they become a means for the introduction of a different culture through home appliances and multimedia. We can control the use of solar panels, but we cannot control the use of generators,” says Santi.

### Social Code of Conduct

The use of energy has made it necessary to incorporate various regulations that are now part of the Social Code of Conduct which applies to this community, as are the setting of schedules for the operation of the gasoline powered generators, or the implementation of a multimedia room with solar panels for the use by the population, especially when there is a need to follow up on the news that this community generates outside.

For now, the Sarayaku Social Code of Conduct can still control the use of this energy, but the population is growing and is exerting pressure regarding the need for more drastic change.

The maintenance and replacement costs for the solar panels are very high and the costs are borne communally for now, but the demand keeps on growing and so do the gasoline powered generators.

Contact with the Western world increases and the young people of Sarayaku are more and more connected to social networks and travel more frequently to El Puyo, the capital of the Pastaza province. Their dynamic increases the need for electricity.

“We do not know how long we will be able to resist outside influence, but

I believe that the time will come when we will have to talk about whether we should resist the arrival of the electricity produced by the hydroelectric plants or should we from now start thinking of the conditions under which we can welcome it,” says Santi.

The concerns that Santi has have to do with the construction of the hydroelectric projects very near the Sarayaku territory, as is the complex to be built in the Santiago River, in the province of Morona Santiago, that borders with this community.

Time will tell if the Sarayaku will remain as a community that resists Western influence, or if it is able to maintain its identity and culture despite this penetration where electricity becomes one of the best allies of acculturation. □

*“Communities can have their own hydro-plants; it’s not just something that large companies can do. We have great resources such as the rivers but we don’t take advantage of them and then large companies come and exploit them.”*

— MIGUEL CRUZ COBO

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