

# WORLD RIVERS

# REVIEW

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## Amazon in Peril

### Dams Threaten Rainforest Biodiversity

by Glenn Switkes

The Amazon Basin is well-known as a biological wonder. Its impressive statistics attest to its global importance: the river accounts for one-fifth of the world's freshwater flow, and its vast floodplain includes 60% of the planet's remaining tropical rainforests. The rich ecosystems support an equally diverse group of indigenous peoples who rely on its waters for sustenance and transport.

But to many in Brazil's energy sector, the mighty river is primarily a tool for industrial and urban expansion. With most of the country's future hydroelectric potential in the Amazon, the government is pressing for scores of

dams to be built over the next 20 years.

At a recent public hearing, the head of energy planning for Brazil's Mines and Energy Ministry, Altino Ventura Filho, said, "Plans for Brazil's energy future are based on hydroelectricity from the Amazon – we're going to build all the dams we can given the current legislation, and then we'll revisit the other potential dam sites that would impact indigenous lands and protected areas and see how we can exploit those as well."

Under the guise of promoting "cheap, clean energy," Brazil's dam builders are planning more than 100 dams in the Amazon, setting their sights on rivers with almost

a mystical resonance to their indigenous names – the Araguaia, Xingu and Tapajós. If unchecked, the country's projected growth in energy demand will have important implications for the Amazonian rainforests of surrounding countries, including Peru and Bolivia, where dams are being planned to export electricity to Brazil.

Along with global warming, the debate on the future of the Amazon is heating up. The rivers of Amazonia play a vital role in keeping the rainforest alive. The scores of dams being planned could disturb the fragile water balance of the Amazon, accelerating the drying of the forest. The projects would also expel more than 100,000 river-bank dwellers from their lands and seriously degrade dozens of indigenous lands and protected areas.

Brazil's electricity-sector bureaucrats say these will be kinder, gentler dams, with smaller reservoirs, designed to lessen social and environmental impacts. Even Brazil's Environment Minister, Carlos Minc, has become an ardent promoter of dams in the Amazon. Legislation has been introduced that would fast-track the licensing of new dams in Amazonia and allow projects to circumvent Brazil's tough environmental

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Ashaninka communities, led by Ruth Buendia, are fighting plans to build dams in the Peruvian Amazon. Photo: Jonathan McLeod

## World Rivers Review

Volume 24, Number 2  
ISSN Number 0890 6211

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Printed on 100% post-consumer recycled waste paper with vegetable-based inks

# Commentary

## MY RIVER JOURNEY

*In the beginning of time, the Anaconda-Canoe descended from the Milky Way with the first inhabitants of the world. From the center of the earth, it ascended the rivers, stopping to settle human kind. — From an Amazonian Tukanoan creation myth.*



**M**y connection with Latin America's rivers stretches back to my childhood, growing up along Colombia's Magdalena River. When I was smaller than a grown catfish, I swam across the river with my dad during the dry season. Upstream, where the river narrows, we caught jumping *bocachico* fish when they came by the thousands to spawn.

This early swirl in rivers inadvertently set my path. Before I began working at International Rivers, I traveled to see where the Anaconda-Canoe let people off in the rivers of the Amazon. When I got to the headwaters of the Río Negro in the remote Brazilian jungle, an indigenous Tukano man pointed to a big indented boulder by the side of the river and said, "Foi aqui." It was here. Startled by this revelation, my curiosity about the Amazon, its peoples, forests, rivers and myths grew.

My interest led me to the Anthropology Museum in Bogotá – a big old stone colonial jail. Buried underneath a pile of black and white photos was a picture showing a hammock strung between two trees. In it were piles of human bones. Bones were scattered below the hammock as if it could not hold more. These were the bones of indigenous people who were enslaved, forced to extract latex from rubber trees, and tortured if they did not get enough. If they attempted to escape, they were killed. I remember the goosebumps on my arms when I saw the photo, and the thought running through my head: how could a human commit such a crime against another human?

My journey took me next to the Brazilian Amazon, where in the mid-1980s Glenn Switkes and I made the film, "Amazonia: Voices from the Rainforest." With the smell of burning rainforest fresh in our minds, we rushed to the Balbina Dam as the flat and shallow reservoir began to fill, flooding more than 2,360 square kilometers of pristine tropical rainforest. We traversed the dark reservoir waters circling around drowning trees and saw snakes swiftly swimming in search of higher ground. A few baby sloths, monkeys and jaguars were rescued and placed in cages. We were overcome by a pungent sulphur smell. I recollect my fear at this reality: how can we humans commit such crimes against nature?

Many years later, I would remember the photograph of the piles of human bones when I heard Don Carlos Chen, a Maya-Achi man, speak of atrocities committed against his relatives. His wife, three children and 400 fellow villagers were massacred in the middle of the Guatemalan civil war when they refused to move from their rich ancestral lands for the Chixoy Dam.

All too often, communities like Carlos' are the last to learn about dams planned in their areas. They are forced to make sacrifices for the "greater common good" and seldom get anything in return. Their lives are changed forever.

Over the past 30 years, a barrage of dams has been built across the rivers of Latin America. With each, the pulse of communities and nature has suffered. Our cover story highlights plans to dam the tributaries of the mighty Amazon River – plans that are facing fierce opposition from indigenous peoples.

The people of Latin America are rising up and saying "no more." Mexicans have waged an intense struggle against La Parota Dam. Using protests, legal strategies and roadblocks, they have stalled the dam for many years. Felicio Pontes of Brazil has used the rule of law to successfully halt dams in the Amazon Basin. Across the region, communities are organizing their own *consultas*, or local referenda, stepping in to be a part of the decision-making process. In Chile, investment in renewable energy sources has grown significantly in the last year, including an estimated one billion dollars invested in wind power.

Even though our work often entails facing dark, gruesome and painful realities, I thrive in the space where together with partners we think of ways of protecting rivers, and ultimately defending the life of the people. But we need more people to stand and speak up for rivers and communities. We need your voice.

Monti Aguirre

# MAKING WAVES

## In the News

“A drought-crippled Gibe III would bring a sea of red ink to Ethiopia and lead to blackouts and economic consequences for regional governments that buy its electricity.”

From “Big Dam, Bigger Problems,” op-ed by Lori Pottinger published in the Los Angeles Times, May 14, 2009.

“The [Hydropower Sustainability Assessment Forum] protocol will increase conflict and confusion in the hydropower sector. It will not create the predictability which financiers are seeking.”

wrote Peter Bosshard in an op-ed that appeared in the journal, Environmental Finance, May 2009.



### International Day of Action Against Dams

Villagers in northeast India burned a model of the proposed 2000 MW Lower Subansiri Hydropower Project on March 14. They called on the Chief Minister of Assam state to stop construction. The protest was one of 116 actions organized in 29 countries to highlight threats to the world's rivers and to celebrate efforts to protect them. View more photos at [www.flickr.com/photos/internationalrivers](http://www.flickr.com/photos/internationalrivers).

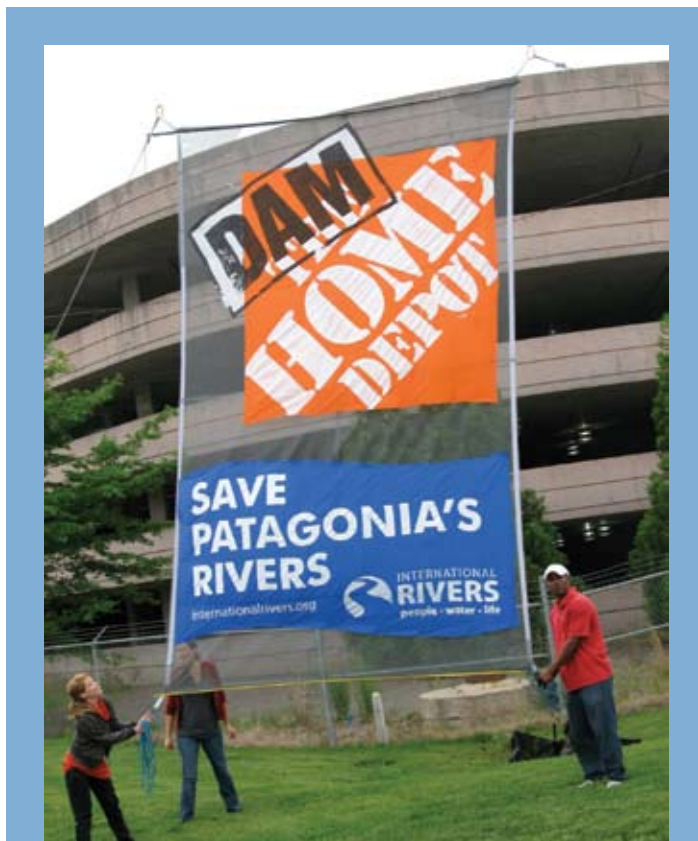
Photo: People's Movement for Subansiri

## Victory Over Ilisu

Germany, Austria and Switzerland will withdraw their export credit guarantees for the controversial Ilisu Dam in Turkey by July 6, according to the German daily Frankfurter Rundschau Online. Environmental and human rights organizations had repeatedly pointed out that Turkey violated the social and environmental conditions of the guarantees. The action increases the likelihood that the dam will be cancelled. European banks providing finance for the project are also expected to withdraw.

## New Coalition to Save the Mekong

A cascade of eleven dams proposed for the Mekong River's mainstream threatens the river's ecology and rich fisheries that feed millions of people in mainland Southeast Asia. In March 2009, a new coalition was launched to “Save the Mekong.” Coalition partners, including International Rivers, have gathered over 16,000 signatures from citizens in the Mekong countries and around the world calling for the river to remain free flowing. The petition was delivered to the region's leaders, including by hand to Thailand's Prime Minister Abhisit Vejjajiva on June 18. For more information, visit [www.savethemekong.org](http://www.savethemekong.org).



### Dam Home Depot, Save Patagonia's Rivers

International Rivers welcomed shareholders to The Home Depot's Annual Meeting in May with a message that the home improvement store should stop purchasing timber from companies involved in plans to construct a series of dams in Chilean Patagonia.

# Rivers Under Siege: Latin America Hotspots

Hundreds of dams are planned across the continent. Here we highlight some of the leading threats to rivers and communities in Latin America.



# One Person, One Vote

## The Voice of Communities in Development Decisions

By Monti Aguirre

**In defense of their lands and lives, throughout Latin America communities affected by dams and mines are banding together to organize their own local referenda to record their voices on critical development decisions.**

**A**fter the Guatemalan government began promoting the Xalala Dam as a national priority, community members began organizing meetings to learn about the project, talk about its impacts and ultimately record their vote on whether they approved or disapproved of the project.

Women and men, young and old, began to meet in local plazas under ardent suns and thatched, wall-less communal meeting rooms. They spoke of what was at stake if the dam was built – how they would lose their rivers, lands, ancient burial grounds, crops, hunting grounds and sense of community. They told the sad story over and over of how the Chixoy dam drastically changed the lives of their Maya-Achi relatives.

As Maya people have done for centuries, “They spoke to each other, thought and meditated; got together and sought agreement in thoughts and words” (Popol Vuh) and in April of 2007 held the “Community Consultation in Good Faith.”

Across Latin America a slew of large and small dams are planned for the rivers of the region – lined up for construction almost as if dams were being manufactured in a factory. These projects are planned and implemented by governments and companies with little or no meaningful participation by the communities that are most likely to be affected.

Consultation with communities is usually a requirement for project approval, yet is often deeply flawed. People often lack timely access to project information. Some affected people may be bribed or deceived into signing agreements endorsing the project. Those who speak out against dams and mines are subject to violence, repression or death.

### Democratizing development

Rather than participating in flawed development processes, communities across Latin America are organizing local referenda to record their votes on dams, mines and other large development projects. These referenda, often called consultations, also involve detailed discussions so community members can understand the likely impacts of these projects on their lives.

“We got together early on the day of the popular consultation,” said Victor Caal, a local teacher, who served as a facilitator during the popular consultation around the Xalala Dam in the Ixcán region of Guatemala. “The elderly, women, men and children all came. Several national and international observers were present.”



**Community members, young and old, recorded their votes on whether Guatemala's Xalala dam should proceed. Photo: Commission on Community Consultation**

Of the 21,000 voters in the referendum, 90% voted “no” to the dam. While the Guatemalan government refuses to recognize the vote, the demonstrated local opposition discouraged companies from bidding on the Xalala Dam last November.

“Maya communities have ancestrally held popular consultations,” said Carlos Loarca, a Guatemalan lawyer who has been studying popular consultations. “Their decisions are legitimized through sharing of information, dialogue and consensus, which human rights legal instruments call free, prior and informed consent.”

Free, prior and informed consent is increasingly recognized as the international norm for the development of

resource extraction projects such as dams and mines on indigenous lands. The right was included in the 2007 UN Declaration on the Rights of Indigenous Peoples, but continues to be violated by governments around the world. Popular consultations are being used to demonstrate the lack of free, prior and informed consent amongst a community. But whether the results of these consultations are binding or not is another question.

“Many democratic countries have laws that allow municipal, state and national referenda. The results of these votes may or may not be binding, depending on the issue that is the subject of the vote, and the laws of the country where the vote is held,” said Lewis Gordon from the Environmental Defender Law Center. “The popular consultation is typically a referendum on matters of local concern. But only in recent years have these local votes been used to gauge popular sentiment on issues such as dams, mines and oil exploration.”

### Success in Argentina and Costa Rica

One of the most successful efforts resulting from a plebiscite campaign took place in 1996 around construction of the Paraná Medio Dam in the Entre Ríos Province in Argentina. The project spurred heated debates in the Provincial Senate between environmentalists and dam proponents, which resulted in a request by two radical senators for a plebiscite. The request was voted on, passed and sent to the executive branch to authorize it, where it was blocked. River defenders did not get a plebiscite, but after defeating many obstacles obtained full victory in September 1997, when their efforts resulted in Argentina's first ever anti-dam law. The law, which is still standing, forbids new dam projects from being constructed on the Paraná and Uruguay rivers in the entire province of Entre Ríos. The middle Paraná River supports the livelihoods of more than 30,000 people and indirectly benefits more than 100,000 people.

*Continued on page 11*

# Latin America's Green Energy Revolution

Step by step, communities and countries across Latin America are changing the way they use and create energy. From Brazil to Cuba, a green energy revolution is taking place that promises to deliver power to the people without harming communities or the environment.

## Brazil's Beginning to See the Light

By Glenn Switkes



Solar installation at a São Paulo hospital.

The adoption of new renewable energy sources in Brazil has been stonewalled by hydropower proponents for decades. Their efforts are the main reason why hydroelectricity accounts for over 80% of the country's electricity production. But the passage of a solar power law in the city of São Paulo has cast a ray of hope for alternative energy advocates.

A leading culprit behind Brazil's energy consumption is the electric shower head – a simple and efficient device for heating water. When two-thirds of Brazil's workers come home and turn on their showers between 6:30 and 7:30 pm, an enormous surge in the country's peak power demand occurs. About 8% of the country's electricity is used to heat shower water. This represents 25% of the peak demand on Brazil's electricity system. The country's energy planners argue that this requires building more dams to generate power each evening.

### Another solution

However, the city of São Paulo has come up with another solution. Latin America's second largest city, with over 11 million inhabitants, São Paulo passed a law in 2007 requiring new buildings to have solar hot water heating systems. This would make the electric shower head unnecessary. The law requires single-family dwellings and apartments with four or more bathrooms to install solar heaters, and for smaller dwellings to be equipped with plumbing and roof space that would permit their installation in the future. The same applies to new buildings for businesses, hotels, hospitals, schools and other industries.

The potential for exploiting solar power in Brazil is tremendous. On average, Brazilians enjoy 280 days of sunshine per year. But in the absence of government and legislative incentives, the price of installing solar systems has remained prohibitively high.

The solar law was in large part the work of Délcio Rodrigues, a researcher with the NGO Vitae Civilis, which coordinates the Solar Cities Initiative. "Passage of the law was a great victory for renewable, decentralized, and sustainable energy," said Rodrigues. "It has been followed by 25 other medium and large cities already. There are now more than 100 cities with pro-solar projects under debate. This certainly will help to alleviate pressures to build new dams and other generating stations."

Solar laws in other Brazilian cities either require installation of solar hot water heaters or provide incentives for consumers who choose solar energy. Laws approved by the states of São Paulo, Rio de Janeiro and Minas Gerais are now requiring the use of solar hot water systems in new hospitals, schools and other state buildings. And the federal program, "My home, my life," that aims to build one million homes for low-income families, is giving priority to housing projects that plan the installation of solar collectors.

"The time to decide about the climate and energy policies we want is now. Hopefully our experience with solar cities can set us in the direction toward sustainability," said Rodrigues. ●

## Better Energy Planning Would Eliminate Need for Chilean Dams

By Benjamin Witte

Chile can meet its future energy needs by building renewable power plants and aggressively improving its current use of energy, according to a group of Chilean and Canadian energy experts. The authors of the recently published report, "Is the HidroAysén Project Necessary? An Analysis of Chile's Energy Future," state that Chile has enough electricity projects already in the pipeline to more than satisfy demand in the coming years.

The news comes at a critical time as Chilean utility Colbún and Italian-owned Endesa are ramping up efforts to build the controversial HidroAysén project. Proposed in 2006 at a time of widespread concern over Chile's thinly stretched energy supply, the HidroAysén project calls for five massive dams along Patagonia's Baker and Pascua rivers. If approved by government environmental authorities, the dams will together boast an installed capacity of 2,750 MW.

HidroAysén officials champion their US\$3.2 billion plan as a "Proyecto País," or national priority, insisting the dams are a necessary step toward satisfying the country's growing appetite for elec-

tricity. Several high-level government officials have publicly agreed. New research suggests otherwise. “One of the prevailing misconceptions is that in order for Chile to develop economically, if they don’t approve HidroAysén, then they must build this massive amount of coal-fired power plants,” said study author Stephen Hall, an independent energy consultant from Canada. “But under a realistic forecast with aggressive efficiency and renewables, we can obviate the need for both HidroAysén and any additional coal development.”

The government’s National Energy Commission, or CNE, predicts that in the coming years, electricity demand will grow by between 5.5% and 6.5% annually. By 2025, the CNE forecasts, Chile’s central grid will need to be expanded by at least 13,000 MW.

Given the many energy projects government authorities have already approved or are in the process of approving, Chile should have little difficulty meeting that target, insist Hall and his collaborators, Universidad de Chile researchers Roberto Román, Felipe Cuevas and Pablo Sánchez. By 2025, those projects alone should add nearly 14,000 MW, bringing the central grid’s total to approximately 23,000 MW. Energy efficiency efforts and future renewable-based projects could, even by conservative estimates, boost capacity by an additional 7,284 MW, the researchers predict. HidroAysén’s 2,750 MW would then bring the total to more than 32,000 MW – too much electricity, the study concluded.

The researchers, furthermore, consider the CNE’s demand forecast somewhat exaggerated. Given the current global recession, electricity demand is likely to increase by just 3% between now and 2011, Hall and his associates predict. And, given historical trends, demand can be expected to rise by 4.5% thereafter. By 2025, in other words, Chile’s central grid may need just 18,452 MW, making the HidroAysén dam project even less of a priority.

“This is a study that was lacking,” said Patagonia sin Represas political coordinator Manuel Baquedano. “It gives us an argument against people who say that without HidroAysén we’re going back to the era of candles.” ●

## Cuba’s Energy Revolution: Yes, They Can!

By Peter Bosshard



The Cuban government built two wind farms to help expand the country’s energy supply Photo: Mario Alberto Arrastia Avila

Just a few years ago, Cuba was plagued by frequent power blackouts – the result of inefficient generation by outdated thermal power plants, large transmission losses, and wasteful consumption. In 2006, the government responded by launching its “Revolución Energética.” This revolution has been a resounding success.

Cuba’s electricity utility viewed energy conservation as a virtual oil deposit that could be tapped. It mobilized consumers to replace almost 100% of the country’s incandescent light bulbs with compact fluorescents within six months. Consumers also bought more

than two million energy-efficient refrigerators, one million fans, 182,000 air conditioners and 260,000 water pumps. To drive the conservation message home, the electricity rate rises steeply with consumption and punishes wasteful consumption.

To ramp up generation, the government built two wind farms, a grid-connected solar plant and 180 micro-hydro power plants, and expanded the capacity of the country’s biogas facilities (mainly in the sugar sector). It also tackled the transmission losses by upgrading transmission cables and meters.

Cuba has promoted renewable energy for off-grid electrification for many years. Solar electric systems have been installed to electrify all schools, health clinics and social centers in the country. The government plans to electrify the remaining 100,000 houses that have no access to electricity with renewable energy.

The Revolución Energética made power blackouts, which in 2004 and 2005 hit the country almost every day, a thing of the past. Cuba is the world’s only country which has achieved high human development (according to the UN’s Human Development Index) without an unsustainable ecological footprint (as measured by the Living Planet index).

Just as Cuba is exporting doctors and teachers, the country also sends renewable energy experts abroad. Cuban technicians have installed solar panels and provided advice on energy efficiency in many African and Latin American countries.

Cuba’s energy revolution has been praised by the UN Environment Program and other institutions. The United States, meanwhile, is still boycotting the Caribbean island. The trade embargo is greatly hampering Cuba’s efforts to upgrade its bagasse and wind power plants.

Just as Cuba could benefit from US technology, we could learn from Cuba’s ingenuity in the energy sector. We hope the Obama administration will soon abolish the anachronistic trade embargo and engage in a joint energy revolution with the Cuban government. ●



A new study shows that Chile can meet its energy needs without damming the Pascua River.

The text on Cuba is based on an article by Laurie Guevara-Stone in the April 2009 issue of *Renewable Energy World Magazine*. Photo: <http://www.renewableenergyworld.com/rea/photo?id=49138>

# River Guardians



## Hauling dam builders into court

### Felício Pontes

At great personal risk, Felício Pontes has used the rule of law to challenge big dams in Brazil. Three years ago, when Brazil's energy ministry called for government agencies to accelerate the development of large dams and other projects deemed "strategic" for the country's growth, there was one dissenting voice – the Federal Public Ministry.

According to Pontes, who is a public prosecutor in the Amazon state of Pará, "the logic of the democratic system cannot permit that the body charged with monitoring the actions of government agencies act as their consultant...we must keep a certain distance so we can act in defense of democracy and social interests."

Pontes is one of a number of federal attorneys who have been a thorn in the side of Brazil's electric sector, to the point where the World Bank condemned what it termed "the judicialization of the licensing of dams."

The 43-year-old Pontes has brought actions contesting the licensing of Belo Monte Dam on the Xingu River, which is the largest dam currently planned in the world. He argued that the project should be halted due to irregularities in the licensing process and improprieties in public bidding for contracts to carry out the environmental impact assessment. These lawsuits have delayed the project for close to a decade.

"Belo Monte would have already been in operation were it not for our challenges," said Pontes. "We've used legal instruments for a social purpose, in the sense of mobilizing those who would be affected."

## Communities resilient after Urrá Dam built

### Marly Morelos

After Colombia's Urrá I Dam was built, the Association of Peasant and Fishing Communities of the Large Wetlands of the Lower Sinú River (ASPROCIG) was left to address the impacts of the dam.

"The Sinú River used to bring nutrients to our lands. We grew rice and

plantain, had fish, shrimp and wood to make our canoes," said Marly Morelos of Sinú delta village San Bernardo del Viento. "We lost all of that, and the sea salt began to eat up our delta lands. People began to leave."

But instead of giving up, Morelos joined forces with ASPROCIG to recover their lands. Communities used ancestral knowledge to implement agro-ecological projects. They began to grow their own food without the use of chemicals. Instead of monoculture fields, theirs is an integrated natural forest system. Many lands have been restored. Through ASPROCIG, they have designed their own market system, which does not require intermediaries.

Still, the struggle continues. "Now our main objective is the decommissioning of Urrá I, and to prevent Urrá II from being built," she said. "Those are big fights."







# Stories of Hope from Latin America

By Monti Aguirre  
and Glenn Switkes



## Using experts and lawyers to stop dams

### Matt Terry

With its headwaters in the Ecuadorian Amazon, the Topo River is renowned for its rich riparian habitat and outstanding levels of biodiversity. Even though the conservation group WWF designated the Topo as a "Gift to the Earth," the Topo River, like dozens of Ecuadorian rivers, is slated to be dammed.

Matt Terry, director of the Ecuadorian Rivers Institute (ERI), has played a critical role in protecting the wild river. Terry is an avid kayaker who has paddled the river more than a hundred times over the last 12 years and ap-

preciates the natural value of the Topo.

When they found out about the dam plans, the ERI reviewed the project and found a number of irregularities in the permitting process, including the omission of all threatened and endemic plant species from the environmental impact studies, dramatic over-dimensioning of the project size, and significant deficiencies in the public participation process. The ERI went on to suggest a number of alternatives to provide renewable energy production for the country while preserving the Topo as a free-flowing river. These observations were at the heart of lawsuits which successfully challenged the project.

Unfortunately, appeals to the lawsuits have been successful and development is proceeding. Still, local communities and the local municipal government continue to oppose the project. They have vowed to set up roadblocks to the proposed dam site, and to take other measures to stop the project. Meanwhile, the ERI continues to lobby for measures in Ecuador's new water law to protect Ecuador's most outstanding and exceptional free-flowing rivers from development.

## The pursuit of justice

### Juan de Dios Garcia

Juan de Dios Garcia is all too familiar with the legacy of Guatemala's Chixoy Dam. When the project was built over 30 years ago, 13,000 people were affected. Some were displaced, some lost their lands and livelihoods. Many were left mired in poverty.

When communities resisted and fought for better compensation, they were faced with repression and violence. Over 400 people were massacred. Garcia's wife is one of the survivors of the massacre.



But instead of losing hope, Garcia worked with dam-affected communities to establish a negotiations process to repair damages inflicted by the dam. Garcia works with the Association for the Integral Development of the Victims of Violence in the Verapaces, Maya-Achi. Through his and the community's work, the Guatemalan government established a commission to negotiate reparations for the affected communities. The commission is comprised of representatives of the Guatemalan government, the World Bank, and the Inter-American Development Bank, and is facilitated by a representative of the Organization of American States.

After some ups and downs in the negotiations process, in March 2008, the government of Guatemala and dam-affected communities signed an agreement. The work is not over yet, but some progress has been made. Partial reparations, scheduled to commence in 2010, include providing more land to communities, building new houses in the resettlement village of Pacux, providing potable water and drainage for existing homes and building a health center.

"It is with great satisfaction that I work with these communities that have suffered so much. They are also my family," said Garcia. "This is not my fight, it is the fight of all of us, the fight to bring about truth, open up new doors for other people, address impunity and sow the seeds for a new generation."

# Chile's Endangered Rivers

By Ben Witte

Alejandro Koehler showed up at the headquarters of one of Chile's regional environmental authorities last October convinced he had the legal arguments to block a large-scale dam planned for the nearby San Pedro River. He was wrong.

Soon after presenting his case before the authority, known as COREMA, the then-mayor of Panguipulli found himself – along with 20 other critics of the project – dragged out of the government office by riot gear-clad police officers. By the time Koehler was released from police custody eight hours later, the deal was done. COREMA had given energy company Colbún – controlled by the Chilean Matte and Angelini economic groups – a green light to build the region's first large-scale hydroelectric dam.

"They violated all of our rights. They injured us. They hit us. It was totally arbitrary," said Koehler. "I was a political prisoner in 1973. I spent many years in exile in Germany. And so it seemed surrealistic being arrested under a democratic government which we'd fought so hard to restore."

## Shouting into the wind

Koehler is one of thousands of people throughout the country who have raised their voices against plans by energy companies, oftentimes foreign-owned, to tap the electricity potential of Chile's various rivers. The projects are environmentally destructive, economically short-sighted and, given Chile's potential for non-conventional renewable energies, ultimately unnecessary, argue a growing number of local residents, indigenous and environmental groups and politicians.

But as Koehler discovered first-hand, those arguments tend to fall on deaf ears, ignored by environmental authorities and the mainstream media alike. Chile's National Environmental Commission (CONAMA) and regional COREMAs have taken a rubber stamp approach, approving all but two of the 32 hydroelectric projects processed between 1997 and 2007.

Opponents of such projects are hoping the high-profile HidroAysén venture will be an exception. Formed in 2006, HidroAysén is a joint entity created by Italian-owned Endesa, the nation's top electricity provider, and Colbún. Together, the companies plan to build five massive dams along Chilean Patagonia's Baker and Pascua rivers.

Like Colbún's San Pedro project, HidroAysén's multi-billion dollar plan was quick to attract local resistance. However, local opposition soon mushroomed into national and international campaigns that have placed unprecedented pressure on the companies involved and helped stall the project.

"There's been a change on the level of the general public," said Santiago-based ecologist Juan Pablo Orrego, a leading member of the Patagonia Without Dams campaign. "There's a lot more consciousness these days than there was when we questioned the Pangue and Ralco projects on the Biobío."

"With these campaigns we've shed light on the real costs of these huge hydroelectric power plants," he added. "Before, they were always seen as sources of clean, renewable and cheap energy. The three clichés. We've shown that's not true."



An onslaught of dams are planned for Chile's rivers, including the Biobío. Photo: Aguas Libres de Quilaco

## Dams, dams and more dams

With national attention focused on Patagonia, Colbún and other energy companies have quietly pushed through a long list of other hydroelectric projects in sensitive watersheds throughout Chile with little or no debate. Colbún's US\$200 million San Pedro power plant is a case in point. The project, approved with hardly a mention in the national media, calls for a 56-meter-high dam and accompanying reservoir that will extend more than 12 kilometers and flood nearly 300 hectares.

Colbún, the country's third largest electricity provider, insists energy-strapped Chile desperately needs the 144 megawatts the dam will provide. The company also insists the project is environmentally sound and will bring much-needed jobs to Region XIV, which is located 900 kilometers south of Santiago, Chile's political and economic center.

Alejandro Koehler and his allies in the fight against the dam insist otherwise. They say the San Pedro facility will have a major environmental impact, flooding rare Valdivian rainforest and altering the natural flow of the river.

Colbún's own Environmental Impact Study (EIS) points out that unlike other Chilean rivers, which are dominated by introduced salmonids, the San Pedro boasts a high proportion of native species: 96%. One of those is the *tollo valdiviano*, an extremely rare species of catfish that was not discovered until 1987 and is thought to exist nowhere else on the planet. University of Kansas professor Gloria Arratía, who discovered the species, says the dam could contribute to the animal's eventual extinction.

Critics also describe the project as economically short-sighted. While the project will generate jobs during construction, the facility will provide only a handful of permanent positions once it is in operation. Its negative impact on the area's tourism industry could be lasting, they warn.

“Once the project is finished, the state, the mayor and the citizens are going to have to ask themselves, ‘OK, what do we do now?’” said Koehler. “By that time, the rivers will already be tapped. We’ll have dams and thousands of miles of power lines that will blight the landscape. Things just won’t be the same.”

The San Pedro project isn’t the only major hydroelectric facility in the works for Chile’s “Rivers Region,” as Region XIV is also known. A Norwegian utility called SN Power has plans to build four hydroelectric power stations there that would together generate 700 MW, five times the capacity of the San Pedro facility.

“We’re talking about projects that cover almost the whole watershed. And I don’t think there’s been any real analysis to see how many hydroelectric plants the area can really handle,” said Koehler. “Our government, the Chilean state, has responded to the energy shortage in this very over-simplified way, by saying ‘Well, we have this watershed, these rivers, so let’s build dams.’”

Major hydroelectric projects are in the pipeline further north as well. Colbún submitted an EIS last year for a US\$500 million facility on Region VIII’s Biobío. Chile’s second largest river after the Baker, the Biobío already supports two of the country’s three biggest dams, Pangué and Ralco, which supply approximately 9% of the country’s total electricity.

In 2004, the year Ralco was inaugurated, the Chilean government promised in a report to the Organization of American States that it would not allow any more such projects in the area. Both the Pangué and Ralco dams had proven to be highly controversial, not only because of their environmental impacts but because in both cases the projects forced the relocation of Pehuenche-Mapuche indigenous communities.

History now looks to repeat itself as Colbún’s 360 MW Angostura project, planned for the juncture of the Biobío and Hueque-

cura rivers, calls for a 640 hectare reservoir that would displace approximately 45 families. A number of those families are Pehuenche-Mapuche. To make matters worse, six of the families were already relocated to make room for the Pangué Dam.

### A rubber stamp approach

Observers say the problem is fundamentally institutional, that Chile’s system of environmental impact review is neither designed nor equipped to properly assess and thus filter out potentially destructive projects.

The SEIA process includes a public participation phase, during which observers have 60 days to present arguments for or against a given project. But those two months are not sufficient to analyze the often voluminous impact reports.

Another shortcoming, say critics, is that the COREMAs – the regional bodies responsible for deciding whether or not to approve a given project’s EIS – lack any real autonomy.

COREMA boards are headed by regional governors, who are appointed by the president. The approval process is easily subject to the political and economic whims of the COREMA board members or their superiors in Santiago.

“The COREMAs don’t have any independence whatsoever. They do what La Moneda (Chile’s presidential palace) tells them to do. What’s more, La Moneda is co-opted by the large corporations,” said Juan Pablo Orrego, who heads an environmental NGO called Ecosistemas. “Taking on that alliance between the government and the multinationals is a huge challenge.” ●

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*Benjamin Witte is the editor of the Patagonia Times ([www.patagonia-times.cl](http://www.patagonia-times.cl)), a news site oriented towards environmental issues in southern Chile. This article was reprinted courtesy of the Patagonia Times.*

### Development Decisions *continued*

Community members, environmentalists, church leaders and indigenous peoples organized a municipal referendum against dams on the Pacuare River in Costa Rica in 2005. Of the 10,000 people who voted, 97% opposed the dams. The national electoral tribunal decided the results of the vote would stand for two years. In the meantime, communities are still organizing and informing others of the benefits of preserving the river for ecotourism and local use.

In order to make community consultation binding, “national laws have to be changed, or the courts need to decide that the results of local referenda on issues of local and national interest are binding,” said Gordon.

The people from Tambogrande held the first local vote on mining in Peru in 2002, making use of a municipal law that allows local referenda to vote on issues of local importance. Of all eligible voters who participated, 98% voted against the proposed mining project. “We ask that our decisions are respected, and if the communities say no, well, ‘no’ means ‘no’,” said a woman from the Tambogrande community. The national government and the mining company Manhattan refused to accept the results. Later, the project was stopped when the company was unable to meet government requirements. The company recognized that the demonstrated opposition was an obstacle.

“Popular consultation is democracy at its finest, and the best way to demonstrate community sentiment regarding mines and dam projects is by voting in free and fair elections,” says attorney Brant McGee, a consultant with the Environmental Defender Law Center. “These referenda represent a new, accurate, and democratic measurement that can help in the evaluation of whether a community has provided the free, prior, and informed consent to proposed development as required under international law.”

### Growing trend

Popular consultations on dams and mines are now taking place in many countries. In Guatemala alone, more than 500,000 people have participated in 35 community consultations on mining, oil and dam projects. In 2005, the Municipality of Río Hondo, Guatemala, held a popular consultation on three dams proposed on the Colorado River near the headwaters of the Sierras de las Minas mountain range. The vote, proposed by the Mayor and Municipal Council and conducted by the Supreme Electoral Tribunal, overwhelmingly rejected the dams due to their potential environmental impacts, and irregularities in the environmental impact study. The vote was recognized by the Guatemalan government.

In Peru, a popular consultation took place to decide on the Río Blanco copper and molybdenum mining project in three communities high in the foothills of the Andes. Although the voters rejected the mine, the Majaz Company (now Río Blanco) continued exploration, and with help from the police has violently repressed opposition to the mine.

We have yet to see the final impact community consultations and referenda will have in the defense of rivers and the livelihoods of local people. These consultations challenge current development practices, and propose mechanisms for the direct participation of communities in the development process.

“The idea of referenda as a means of fulfilling the right to free, prior and informed consent will become better known as a successful political and legal means to fight unwanted development,” says McGee.

Using local referenda to record the voices of local communities is a powerful democratic tool to not only challenge unwanted development projects but also empower local communities to determine their own path of development. ●

# News Briefs

by Susanne Wong



The successful campaign to stop the damming of the Kawabe River has galvanized citizens to challenge Japan's top-down system of development. Photo: Todd Stradford

## Victory for people's movement in Japan

In a rare move, the governor of Kumamoto Province stood up to the Japanese central government last September and demanded the cancellation of the Kawabe River Estuary Dam. The Construction Ministry responded by temporarily halting the project, which has already relocated several villages.

"We can't cower before the central government," said Kumamoto governor Ikuo Kabashima, a former politics professor. "I believe the Kuma River is a treasure that we should protect." The Kuma River watershed is home to abundant fish populations and annually attracts over one million tourists for recreational activities such as rafting.

The recent action was the culmination of a long struggle by local farmers, fishermen and environmentalists to stop the US\$3.6 billion flood control project. They organized protests, demanded a public hearing and proposed alternative flood management practices that would be cheaper and more effective than the dam. These arguments have held sway. More than 85% of voters in the prefecture oppose the project.

Other local governments, emboldened by Kubashima's action, have voiced opposition to infrastructure projects imposed by the central government. In November, four prefectural governments in the Kansai region requested the cancellation of a planned dam. The governors of Niigata and Osaka prefectures refused to pay for a new train line and bridge. Saddled with huge debt burdens for national infrastructure projects, local governments are increasingly demanding a say in spending decisions.

The suspension of the Kawabe Dam provides an important opportunity to change how development decisions are made, according to Professor Izumi Washitani of Tokyo University. "If we can move one step further from just debating the pros and cons of the dam and create a dynamic in which people can discuss balancing the competing interests of flood control, the environment, agriculture, fishery and tourism, Kumamoto Prefecture's measures will be a model case of formulating comprehensive flood-control measures," she said.

## Blessed solar power

The Vatican recently announced plans to build Europe's largest solar plant on 740 acres of land north of Rome. While European governments are struggling to revive their economies and meet the European Union's target of reducing greenhouse gas emissions by 20% of 1990 levels by 2020, the head of the Roman Catholic Church is plunging full speed ahead.

"Now is the time to strike," said Cardinal Giovanni Lajolo, the Vatican City's governor. "One should take advantage of the crisis to try and develop these renewable-energy sources to the maximum, which in the long run will reap incomparable rewards."

The government of Italy, which surrounds the Vatican, has resisted calls to cut its emissions. The country is likely to miss its targets under the Kyoto treaty, which called for a 6.5% reduction in 1990 emissions by 2012.

Meanwhile, the tiny city-state is likely to earn revenues from Italy once the \$660 million solar plant is built in 2014, making it a net energy exporter.

The Pope has been a strong advocate for the environment. During an address for World Peace Day in 2006, he said: "The destruction of the environment, its improper or selfish use, and the violent hoarding of the Earth's resources cause grievances, conflicts and wars, precisely because they are the consequences of an inhumane concept of development."

Bloomberg reported that the Vatican listed pollution as one of seven "social" sins in an effort last year to update the cardinal vices that date to the 6th century. "You offend God not only by stealing, taking the Lord's name in vain or coveting

your neighbor's wife but also by wrecking the environment," said Bishop Gianfranco Girotti.

The Vatican recently put its words into action by installing 2,400 solar panels on the roof of the Paul VI auditorium. The panels produce 300-kilowatt hours of energy a year, enough for 100 households, and cut the Vatican's carbon-dioxide emissions by 225 tons.

## Hydrologists for hire

In the midst of a global economic downturn, one profession remains in high demand – hydrologists. According to the US Bureau of Labor Statistics, the demand for hydrologists is expected to grow 24% from 2006 to 2016.

Hydrologists are scientists who try to solve problems of water quality, quantity and availability. In the 1970s, hydrologists focused on how to clean up polluted water supplies. Now, amidst problems of scarcity, mismanagement and greater hydrologic variability due to global warming, hydrologists are increasingly focused on trying to ensure that people have enough water to survive.

## Financing a greener economy

The much-criticized economic stimulus bill passed by the US Congress in February contained a groundbreaking provision. The bill allocated \$1.2 billion for green infrastructure, water and energy efficiency and other environmentally innovative projects.

The Clean Water Network said this provides "an unprecedented opportunity to make a huge step towards smart, sustainable water management in the US."

Projects that qualify for funding include installation of water meters, graywater recycling, installation of renewable energy plants to power water treatment facilities, rainwater harvesting, floodplain and wetland restoration and projects that facilitate the adaptation of clean water programs to climate change.

The biggest challenge will be ensuring that the money is used to fund the best possible green projects and does not lapse to conventional projects, says Clean Water Network.

Twenty percent of funds typically allocated for states to improve drinking water and wastewater infrastructure have been allocated for the green project reserve. The bill includes a provision allowing states to use the green project reserve to finance conventional projects if they do not receive a sufficient amount of green project proposals.

The US Environmental Protection Agency, which is administering the funds, has said that its goal is to have all states fund green projects rather than pursue such an exemption. For more information, visit [www.americanrivers.org](http://www.americanrivers.org).

## Reducing malaria with flower pots?

Using a surprisingly simple device, researchers at the University of Rhode Island say they can purify drinking water and save millions of lives each year.

The device involves placing a porous clay pot in a five-gallon plastic bucket. Once water passes through the clay pot into the bucket, researchers say the water is clean and safe to drink.

The design was developed by Dr. Fernando Mazariegos of the Central American Industrial Research Institute in Guatemala. After Hurricane Mitch left thousands without safe water supplies in 1998, the group Potters for Peace began organizing workshops to teach communities how to make the filters. They have worked with

communities to establish factories in Guatemala, Honduras, Cambodia, Bangladesh, Sudan and other countries.

Professor Vinka Craver from the University of Rhode Island was one of the first to test the filter's effectiveness. She found that plain ceramic filters removed 97% of bacteria from water. Filters with colloidal silver, using the Mazariegos design, removed more than 99% of bacteria. Craver hopes the findings will help expand the use of the filters, which can be built at a cost of \$10-25 each.

This summer, Craver will work with a Mayan community in Guatemala to assess the impact of the filters on their health. One of her graduate students will also introduce the filter in South Africa to see if they can help extend the lives of people suffering from HIV/AIDS. The compromised immune systems of people with HIV/AIDS make them susceptible to waterborne diseases. For more information on the filters, visit [www.pottersforpeace.org](http://www.pottersforpeace.org).

## America's 10 most endangered rivers

The conservation group American Rivers released its list of the 10 most endangered rivers in the US. Rivers on the list range from Alaska's pristine Beaver Creek, which is threatened by plans for oil and gas development, to the heavily dammed Sacramento-San Joaquin River system in California. The Sacramento-San Joaquin system, which supplies water to 25 million people, topped the list due to increasing demands for water withdrawals and outdated water supply and flood management systems.

American Rivers publishes the annual list to highlight threatened rivers and call on the public and policymakers to take action to protect the country's rich natural heritage.

"Our nation is at a transformational moment when it comes to rivers and clean water," said

Rebecca Wodder, President of American Rivers. "Water is life, yet our nation's water infrastructure is so outdated that our clean drinking water, flood protection and river health face unprecedented threats. Our country needs ... smart, cost-effective solutions for clean drinking water, flood protection and river health ... that will bring us into the 21st century."

Visit [www.americanrivers.org](http://www.americanrivers.org) to find out how you can help protect rivers in the US.

## Drying up the Colorado

A new study indicates that climate change will dry up the Colorado River so much that it won't be able to deliver all the water promised to millions who count on it for their homes, farms and businesses. If rain and snowfall continue to decline, by 2050 the Colorado River won't be able to provide sufficient water 60-90% of the time. The study was conducted by Tim Barnett and David Pierce, researchers at the Scripps Institution of Oceanography.

"The actions that need to be taken aren't going to be fun," Barnett said. "It's not going to

be life as usual." However, they say that measures like conservation and water exchanges could play a key role in avoiding some of the biggest shortfalls.

## Federal judge suspends Belo Monte Dam

A federal judge suspended the licensing process in June for the Belo Monte Dam, a massive hydroelectric project planned for the Xingu River, one of the Amazon's largest tributaries. Environmental licensing authority Ibama had accepted the environmental impact studies for the dam on May 25, despite problems verified by its technical team. The Federal Attorney's office argued that studies on impacts to indigenous peoples were incomplete and that project feasibility studies had not yet been approved. Federal Court judge Antonio Carlos de Almeida Campelo partially accepted these arguments and suspended the acceptance of the studies. Ibama will now have to clarify the situation in the courts.



### Brazilian protesters released after 44 days in jail

The last four of 18 leaders of the Brazilian Dam-Affected Movement, MAB, were released from prison on June 9, 44 days after being arrested during a protest at Tucuruí Dam. MAB organized the protest to demand that the Brazilian government fulfill commitments for mitigation. MAB called the arrests "politically motivated" and says the 25-year struggle for compensation for the victims of Tucuruí will continue.

# Interview

## Victory Over Mexico's La Parota Dam

By Monti Aguirre

*Since 2004, thousands of Mexican farmers have been fighting the construction of La Parota Dam in the state of Guerrero. They have staged blockades, protests and legal actions and have faced violent police repression in return. In May, the Mexican press reported that the government would postpone La Parota dam until after 2018. World Rivers Review interviewed Rodolfo Chavez Galindo, a leader of the vibrant movement to stop the dams, about the battle over La Parota.*



Rodolfo Chavez Galindo (right) and Felipe Flores have been at the forefront of the fight to stop La Parota dam. Photo: Maribel Roldon

### WRR: How is the local movement organized?

**RCG:** The Council of Communal Lands and Communities Opposed to La Parota Dam (CECOP) was created by farmers and indigenous peoples to defend their lives, land, water and natural resources. It is composed of more than 5,000 men and women from 39 villages. Its principal strength is that decisions are made in a communal way, in assemblies that have been held every Sunday without fail during the six years we have been fighting the project.

The movement began on July 28, 2003, when the peasants of three villages blocked engineers with the Federal Electricity Commission (CFE) from entering community lands. The CFE had illegally entered the community's land without people's permission. The land compensation process had not started, nor the environmental licensing process. The CFE cleared thousands of trees – which is a federal crime – opened roads, and brought in heavy machinery to begin construction. People got angry when they cut trees, fences and crops.

### WRR: What was the reaction of the government?

**RCG:** The CFE removed the machinery from the peasants' lands. The community set up guard posts to ensure the CFE would not return. The CFE has not been able to re-enter these lands since 2003. The resistance was strengthened by lawsuits, which have suspended the project until now.

The CFE tried other tactics, paying off government officials to try and expropriate the land. They convened fraudulent assemblies. When the farmers who were the owners of the lands tried to enter these assemblies, the CFE impeded their entry with 1,500 police that repelled the farmers with tear gas. Instead, the CFE filled the meetings with people they brought from the cities who were not farmers, a move that was totally illegal.

### WRR: Besides road blocks, what other tactics have you used to fight the project?

**RCG:** Faced with these serious violations, the movement turned to the law. They asked the courts to nullify the assemblies and after three years won a court order. In 2008, the CFE admitted that it could not begin work on the dam because it had not obtained the required permissions, and it had been defeated in the courts.

Lawsuits were also brought on environmental grounds based upon CFE's illegal deforestation and on criminal grounds based upon forged signatures used by CFE to legitimize the fraudulent assemblies. Using the law has been one of the movement's strongest weapons, but the most important has been the strength and determination of the movement itself.

### WRR: Has CECOP presented its case at an international level?

**RCG:** We presented the case of La Parota to the United Nations Department of Economic and Social Affairs (DESA) through a petition signed by 102 Mexican organizations. The DESA Committee issued a recommendation that the Mexican government respect the decisions won by the farmers in the courts, that they respect their legitimate property rights and that any decision be based on a process of free, prior and informed consent by the farmers.

Other UN officials visited the area and recognized the farmers' rights to defend their land. They also confirmed violations of the rights of indigenous peoples and the right to information and consultation.

### WRR: How did farmers react when the Mexican press reported that the government is postponing La Parota until 2018? Is this true?

**RCG:** We have received no official information about this from the CFE. And, our demand is that the project be cancelled once and for all, not postponed!

After delivering a petition to President Calderón demanding a meeting with the CFE, we met with them on May 21, 2009. Our position is that La Parota Dam in Guerrero state, the Paso de la Reyna Dam in Oaxaca, and the Arcediano and El Zapotillo dams in Jalisco must be cancelled, and that those displaced by El Cajón Dam in Nayarit must receive just compensation.

To win, we will need unity among diverse movements, beginning with dam-affected communities. We must integrate our struggle with others suffering from environmental degradation in Mexico and in other countries. And, we must strengthen the struggle for an alternative energy policy.



**The Belo Monte Dam would dry out over 100 km of the Xingu's famous "Big Bend," leaving communities without fish, transportation or clean water supply. Photo: Monti Aguirre**

laws, under the pretext that they are of "strategic importance" to Brazil's future.

But dam projects under construction, such as the Santo Antonio and Jirau dams on the Madeira, the Amazon's principal tributary, have raised the possibility that individual dams could impact a huge area of the Amazon Basin. Scientists have pointed out that several valuable migratory fish species could suffer near-extinction as a result of the Madeira dams, affecting fisheries and fauna thousands of kilometers up and downstream. The fertility of the Amazon floodplain, utilized by agriculturalists and an important site for fish reproduction, would also be negatively affected.

Despite the weight of expert opinions critical of the projects and calls for additional studies, construction on the Madeira dams is now underway amid a flurry of legal challenges.

### World's third largest dam in the Amazon

Belo Monte on the Xingu River, with an installed generating capacity of 11,300 MW, would be the world's third largest hydroelectric project, and the second largest in Brazil. Environmental studies have been completed, and the government says it is planning to offer the project to private investors by October.

Belo Monte would divert nearly the entire flow of the Xingu River through two huge artificial canals to the powerhouse, directly affecting an area of 1,552 square kilometers. A 130 km stretch of the Xingu, including its famous "Big Bend," would dry up. Independent studies question the economic feasibility of the US\$9 billion project, given that the run-of-river dam would generate little or no electricity during the four-month low-water season.

Impacts on indigenous peoples are likely to be a crucial issue in determining whether or not Belo Monte will be built. Last May, 800 indigenous peoples from throughout the Xingu Valley gathered in the city of Altamira to voice their opposition to the damming of the Xingu River. They danced, chanted and warned that if the projects were not halted, there would be "World War Three in the Amazon." For a warrior tribe, this was not a warning to be taken lightly.

Many of the other dams planned for the Amazon would affect indigenous lands. Almost half of the planned dams would also directly impact protected areas. Some, like the Marabá or Serra Quebrada dams on the Tocantins River, would directly flood indigenous territories. Others would destroy fish stocks, which provide

crucial sustenance to indigenous peoples. Seven dams being planned for the Tapajós River would affect indigenous lands and the Amazonia National Park, which has one of the world's greatest diversity of mammal species.

### A changing climate

Amazonian dams are some of the dirtiest on the planet. Balbina – the worst Amazon dam to date – emits ten times more greenhouse gases from rotting vegetation in the reservoir than a coal-fired plant of the same capacity. Recent revelations that Balbina's reservoir now covers 4,337 square kilometers, nearly twice its original size, mean these emissions may be seriously underestimated.

In the long run, the effects of global climate change on the Amazon are uncertain. The Hadley Centre in the UK predicts a greater probability of droughts, which could lead to a 13.4% decrease in the flow of the Amazon's rivers by the end of the century, making Amazon dams less likely to fulfill their stated energy-generating potential. Other studies show that the transformation of extensive areas of the Amazon into drier savannas would have effects in distant parts of the continent, and potentially in North America and Europe as well, causing havoc with regional climatic patterns.

### Exporting disaster

With controversies raging over the damming of Amazonian rivers, Brazil is also looking to import electricity from neighboring countries with weaker environmental and indigenous protection laws. The Peruvian government has pushed through legislation opening indigenous lands to resource exploitation, provoking an uprising among Amazonian natives. Brazilian state electric company Eletrobrás says it plans to build at least six of the eighteen large dams currently being planned for the rivers of the Peruvian Amazon. The Ashaninka indigenous people of the Ene valley have already initiated an international campaign against the Eletrobrás-supported Paquitzango dam, which would flood their ancestral lands.

Evo Morales' government, having protested the construction of dams on the Madeira River due to their probable impacts on Bolivia, has now contracted a Canadian consulting firm to study the feasibility of Cachueta Esperanza Dam on the Beni River. El Bala Dam has also recently resurfaced in discussions on Bolivia's future energy options, including exporting electricity to Brazil.

Brazil is not the only country looking to get energy from its Amazonian neighbors. Colombia would likely be the consumer of much of the electricity that would be generated by Ecuador's Coca Codo Sinclair project on the upper Napo River. The dam would affect the Sumaco Biosphere Reserve and the majestic San Rafael Falls, as well as ancestral lands of the Cofán indigenous people.

There is no doubt that meeting Brazil, and indeed Latin America's, future energy needs is of crucial importance. However, studies have indicated that alternative options exist – a study by the conservation group WWF showed that Brazil could meet a major part of its future energy needs at a lower social, environmental, and economic cost from investments in energy efficiency and clean, renewable energy. Brazil's enormous wind-generating potential is attracting investors and the country's potential for generating electricity from biomass, such as sugar cane bagasse, rice husks, and sawmill scraps has been calculated to exceed the capacity of the massive Itaipu Dam.

Ultimately, the question facing Brazil, as with the rest of humanity, is whether our last precious ecosystems and climate-sustaining rainforests are worth sacrificing for electricity. Surely the Amazon is too precious a place to squander. ●

# Brazil's Growing Regional Influence

By Glenn Switkes

Over the past decade, Brazil's rapid economic growth has generated huge cash reserves for the country. Brazil has been transformed from a debt-laden borrowing country to a financier of domestic and international infrastructure projects, with dramatic implications both within Brazil and in Latin America more generally.

Much of this economic might is wielded through Brazil's National Bank for Social and Economic Development, or BNDES, which uses state pension and unemployment funds to channel billions of dollars annually to large infrastructure projects. The bank now finances up to 70% of the cost of dams, roads, and other infrastructure projects under the Lula government's Growth Acceleration Plan, or PAC.

BNDES approved about US\$70 billion in loans in 2008, an amount exceeded among public development banks only by the China Development Bank and the European Investment Bank. Ten billion dollars was loaned for electricity and gas projects, including the Santo Antonio Dam on the Madeira River, for which a \$3 billion loan was approved last December. In January 2009, BNDES approved its largest loan ever – just over \$3 billion for the Jirau Dam upstream. Yet BNDES has no environmental or social policies, other than a general statement of purpose.

Brazil has also become a dominant force in South America, using its economic might to promote large infrastructure projects to gain contracts for Brazilian construction companies in other countries. This has caused tensions with other Latin American governments and the citizens that are resisting these projects.

BNDES' international arm, its Export-Import Bank, approved \$7.5 billion in loans in 2008, making it only slightly smaller than the Inter-American Development Bank. Among the most highly publicized controversies involving BNDES has been their \$302 million loan to Ecuador for Brazilian construction giant Odebrecht to build the San Francisco Dam. San Francisco has now been shut down because of serious problems with its turbines and tunnels. An investigation uncovered fraud, overpricing, and technical flaws in the dam. Ecuador repaid the loan, but expelled Odebrecht from the country, and has since filed a complaint with the International Court of Arbitration.

Brazil is also using BNDES as a political tool to force other, less powerful governments to do what it wants. One example is its reaction to the crusade by the new Paraguayan President, Fernando Lugo, to get Brazil to pay larger royalties to his country for the electricity it buys from the bi-national Itaipu dam. Lugo says Brazil owes as much as \$4.2 billion in royalties to Paraguay for electricity from Itaipu, and has demanded an audit of the dam's accounts, which could uncover massive corruption. Brazil has countered by offering to loan Paraguay \$2 billion via BNDES for infrastructure and social programs, but refuses to renegotiate the Itaipu treaty.

With Brazil stepping onto the global stage as a major regional power, there is an urgent need for BNDES to adopt clear and binding social and environmental standards. With international investment comes international responsibility, and BNDES will increasingly be held up to international scrutiny. ●



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