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Latin America´s largest solar farm is being built in La Paz (Photo: Griselda Franco Piedra).

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In the face of energy reform, efforts must be redoubled for renewable sources

The energy reform approved by the Mexican Congress this fateful December, is the culmination of neoliberal policies began 31 years ago under the presidency of Miguel de la Madrid, and is the most significant achievement of the North American Free Trade Agreement (NAFTA).

Petroleum, gas, and electricity are not the only resources that are being handed over to both national and foreign investors. All of the nation's natural resources, whether mineral, vegetable or water found on the continent or in the ocean depths are up for grabs.

The changes to the Constitution implicit in this reform legalize actions that violate the country's legal framework, including those of which that have already been occurring. These include: interference by foreign investors in Petroleo Mexicano's explorations; the onslaught against entire towns by foreign mining companies; the acquisition of aquifers on behalf of beverage companies; and an interminable list of assaults that demonstrate the gradual loss of national sovereignty and open up new means of plundering the nation's resources.

The country has been left vulnerable to wholesale theft, especially in the Gulf of California region, whose marine treasures, mineral resources, flora, and fauna attract giant corporations greedy to build mega projects and exploit them without restraint.

Reincarnations of investment plans already defeated by public resistance will no doubt return with greater force and impunity, and efforts to preserve the people's way of life and the area's natural resources will have to be redoubled.

Mexico's weakness deepens if one considers that on making its petroleum, gas and electricity available within the free market, Mexico is being left to the mercy of Canada and the United States, both of which were granted favored nation status by NAFTA.

According to Jamie Cárdenas, researcher from the Autonomous University of Mexico, if Mexico decides to rescind the recent reforms, it will first have to consult with its partner nations under the rules of Articles 11, 14, and 15 of the treaty. It would be even worse for Mexico in the case of disputes with the US or Canadian government or with transnational corporations because the disputes would be resolved through NAFTA's arbitration hearings, where Mexico has yet to win a single case.

It is difficult to predict the scope of the consequences that this "mother of all reforms" will have on the economy, on finances, on society, and on natural resources. However, it will certainly increase tensions in a number of critical areas: in the public's relationship with their political parties and government; between capital and labor; and even more importantly, in the relations between the partner countries, seeing as that Mexico's sovereignty has been handed over to Washington nicely gift-wrapped.

It seems that in the long-term, the generation of alternative energy, the principal theme in this edition of *Melóncoyote*, will suffer the same fate as that of the environment which isn't even marginally touched upon in discussions of power.

Civil society still has not responded, and we hope that once that people shake off the lethargy of their December holidays, they will begin the long struggle to overturn not only the recent energy reform but also other reforms enacted in the past 12 months.

Mission

Why Melóncoyote?

Our project dates back to 1994, when "Journalism to Raise Environmental Awareness" (abbreviated PECE in Spanish) was formed. In 2004, PECE played a role in the founding of the national professional organization The Mexican Environmental Journalist's Network. In 2005, when we started the first grassroots journalism project in the Gulf of California, our team chose the name *Melóncoyote* because it is a species emblematic of the region at the heart of our mission.

The Coyote Melon, known in Spanish as *melón coyote* or *calabacilla* (which includes the species *Cucurbita palmata*, *C. cordata*, *C. digitata* and *C. foetidissima*) is a wild perennial gourd that is resistant, versatile, beautiful, useful and native to the sandy soils that characterize the Gulf of California zone. The coyote melon is found in the region's seven states: Baja California Sur, Baja California, California, Arizona, Sonora, Sinaloa, and Nayarit. A vine, Coyote Melon

has an immense root that guarantees its survival against hard times while its long stems serve to anchor the soil in fragile areas.

The indigenous peoples of the area, bearers of the region's traditional wisdom, describe the plant and how it is used. As medicine, it is bitter, but effective. As a musical instrument, it makes a beautiful rattle. Its seeds provide oil and a flour which contains a high level of protein. Its shell is ideal as a container for all matter of things. Because of all of these traits, and because it is an integral part of the food chain and one of the principal foods of the coyote, they named it "Coyote Melon".

Our team of collaborators chose this name because it is a plant found throughout the region, and in doing so, we wanted to stress our intention to create a large-scale communications medium, capable of spreading (on a regional level) the news about efforts being made towards sustainability. With this symbolic name to represent our work, we are sending a clear message about our respect for the land and the sea, as well as for the ancestral cultures and customs of the region. We see the establishment of this medium for education and dissemination as something urgent, given the idiosyncrasies of the region. We have conceived this project as being an integral element of the environment, something positive like the Coyote Melon.

Faced with the challenges of growth in the region—a low population density, its recent political incorporation into the national government, a high degree of natural attraction and its proximity to the strong investment sector of the United States—we understand the implications of the pressures for development. Dealing with these challenges and pressures will require informed citizens who have the chance to participate in the decisions that affect their land, water, air, biodiversity and their future. We invite others to join with us, to participate in building this medium and to fight for a stable future for the region.

All work on behalf of Melóncoyote is voluntary.



OPINION

Piedras Verdes: disenchantment of a magical town

*Photos and text by Melissa Valenzuela**

ÁLAMOS

Traveling through Mexico it's hard to ignore the environmental problems plaguing the country as a result of the political and economic interests of mostly foreign businesses and corporations, which, under the guise of development, invest in plans that are not necessarily beneficial to local communities. Such is the case of *Piedras Verdes*, a town affected by a mining company that swindled the community out of its land and has not followed through with promised infrastructure projects.

Piedras Verdes, located in the municipality of Álamos, Sonora, has been designated a "*pueblo mágico*" or a magical town because of ecotourism attractions, a pleasant climate, and its colonial buildings, cobblestone streets, handcrafts, and cultural events.

Álamos is bordered on the north by the municipality of Rosario, on the south by the state of Sinaloa, on the east by the state of Chihuahua, and on the west by the municipalities of Huatabampo, Navojoa, and Quiriego.

The town's residents say that the territory has been exploited for copper since 1950 by the Mina del Cinco. The town was given its name, which means "green stones," because water falling on the area's rock would cause oxidation that would bring out its green color.

Time passed, and geological studies of the area increased, but it wasn't until the actual amount of copper available for extraction was finally determined that foreign interest in mining began.

Among these interests is the mining company Frontera Mining Corporation/Cobre del Mayo, S.A. de C.V. which has been extracting the mineral for 9 years, ever since they opened negotiations with 48 *ejidatarios* who cooperatively owned the land.

The company began by holding meetings with the *ejidatarios* where it proposed various agreements that would lead to it gaining control of their lands. "Don" Yoyo, a man of around 75 years old says: "they told us that the mine would benefit us because it would be a source of employment for us and for our children." On the other hand, Señora Conchita says "many lawyers from Mexico City, gringos, and Canadians came to tell us what would be best for us because we would have work, would make money, and with the relocation they would install water lines, paved streets, and we'd have a better life."

In January 2005, they began to vacate the town of Piedras Verdes. The residents took down their own roofs and dismantled their houses, removing the doors, windows and awnings; backhoes were used to knock down the walls. The majority of the people had animals, such as cows, chickens, goats, and sheep. Doña Cuca commented, "with some people, the bulldozers arrived without any advanced warning and knocked down their fences. Their animals just wandered off to the dam or who knows where."

In February, the new housing site had been identified, and the owner of each mapped out. "Don" Ataulfo, a respected local *ejidatario* said, "to tell the truth, I agreed to sell my house because they offered me a lot of money. Imagine if they said to you 'we're going to give you more than 100,000 pesos (US\$8,000) for your house', this is an amount that you couldn't even imagine ever holding in your hand. And so they come and they offer that. People get excited and also want the best for their children and for their neighbors."

On February 17, 2005, post holes were dug for the light poles in Nuevo (New) Piedras Verdes. By February 22, construction had begun on the foundations of the kindergarten, primary school, and the tele-secondary school. The pit for the sewage holding tank was also excavated.

On February 27th, lots were handed over to the new owners. The size and value of each property and house had been evaluated by a professional assessor, and the owner received a corresponding parcel of new land and cash.

"Some specialists came to evaluate the price of each home. There were people who received very little, while others were smarter and resisted selling to the mine. These people were paid a lot more than we were because they were seen as being more astute," stressed "Don" Ataulfo.

By March 17, 2005 the contracts were signed finalizing the relocation of both the homes and the town. During the months of April, May and June, electricity, a community well, and drainage was installed. The ground was scraped to mark the streets of Nuevo Piedras Verdes.

Currently, the town is suffering from water problems: nobody has running water in their homes because there's not

enough, and the inhabitants have to make do with a tanker truck sent daily by the mine. Some people stopped having animals because of the stench they can cause, or to avoid their livestock getting out of their corrals and into the yards of their neighbors.

The inhabitants have been affected by these sudden changes, since many of them were accustomed to living off their livestock and their sesame seed, squash and corn crops. Now they don't plant anything.

Unfortunately, it is corrupt politicians within governmental institutions who issue the permits to carry out such predation and expropriation, and who, in collusion with business people use diverse strategies like fraud to achieve their ends.

Studies have shown that because mining deteriorates and exhausts natural resources, it is one of the nation's top ten ecological problems. It has also put an end to many rural cultures because the mining concessions so far granted encompass more than 133.4 million acres, or one quarter of the nation's territory.

Ethnoecologist Victor Toledo warns that the profits of the Canadian and Mexican companies "are huge" in proportion to the socio-environmental conflicts that are multiplying throughout the country as water and soils are contaminated by emissions and spills of toxic chemicals including cyanide, arsenic, cadmium, lead, and chromium. They also use enormous quantities of water.

Sonora's indigenous rural communities are not the only ones currently dealing with this problem. Sadly, other states including Chihuahua, Durango, and Zacatecas find themselves in the same situation.

In conclusion, what do you think of this problem? Knowing more now about the mining situation in our country, what alternatives or proposals come to mind? How might this situation be resolved? As a citizen, what is your opinion?

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Journalism to Raise Environmental Awareness

Grassroots Bulletin on Sustainable Development in Northwest Mexico

Thermoelectric plants, toxic air factories

By Manuel Hernández Borbolla*

LA PAZ

This city lives up to its name, which translates to "peace". Its tranquility is noticeable both in the streets and the calm waters of the bay.

Maybe that is why it has become a favorite tourist destination for many vacationers looking for sport fishing, whale watching and other similar activities.

The situation would be unbeatable if not for one problem: the highly toxic air breathed every day.

Air pollution is particularly noticeable in the mornings, when brown haze covers the city of La Paz, caused by fine airborne dust and the burning of fossil fuels in vehicles and the power plants on the city's outskirts.

In recent decades, air pollution has become a public health problem that is getting worse each year and contributes to diseases such as pneumonia, acute bronchitis, and lung cancer.

Data from the World Health Organization (WHO) indicate that 14,734 people in Mexico were killed in 2011 by diseases related to poor air quality.

And even though air pollution has become a growing concern for some parts of the city's population, there is no official data on local air quality.

This is demonstrated in the 2011-2013 Action Plan developed jointly by the International Community Foundation (ICF), the private sector, local government, and the Inter-American Development Bank (IDB).

However, data reported by scientists reveal the situation could be more serious than previously thought.

According to a study by Dr. Jeanette Murillo, a researcher at the Marine Sciences Interdisciplinary Center at the National Polytechnic Institute, the air breathed every day in La Paz contains high concentrations of carcinogenic elements such as sulfur, mercury, lead, titanium, and vanadium.

After installing devices to measure air quality at various points in La Paz, Murillo found that concentrations of toxic elements far exceed the maximum limits recommended by WHO and the regulations of both Mexico and the United States.

Sulfur dioxide at all monitoring stations showed levels of 202-783 milligrams per cubic meter (mg/m³), well above the 0.106 mg/m³ permitted by WHO and the Official Mexican Standard (0.010 mg/m³).

The same applies to mercury levels of up to 19 mg/ m³ found at four stations, amounts greater than allowed by the U. S. National Institute for Occupational Safety and Health (10 mg/ m³). Concentrations of lead were also high, reaching 52 mg/ m³ at one station, well above the limit established by the U. S. Environmental Protection Agency (0.15 mg/ m³). Mercury and lead are two elements that are not regulated in Mexico.

In the case of titanium, the levels in some samples (as high as 85 mg/ m³) were four times the limit (equivalent to 20 mg/ m³) allowed by Mexican environmental law

With vanadium, a highly toxic element which can cause lung cancer if inhaled, the situation was even worse, because records at all stations reached levels of up to 127 mg/ m³, two hundred times more than permitted by the U. S. National Institute for Occupational Safety and Health (0.5 mg/ m³). In Mexico this element is not regulated.

The study concludes that these concentrations are caused by the stirring up of soil particles by vehicles and wind early in the day as well as the weathering of rocks and ash emissions from the two fossil fuel-fired power plants that operate on the periphery of the city: the *Punta Prieta* thermoelectric plant and the *Combustión Interna* power plant, operated by the Federal Electricity Commission.

These plants are charged with supplying power to both La Paz and Los Cabos, the main tourist area of the state of Baja California Sur.

The region has the highest growth rate for electricity demand in the nation, according to the Program for Construction and Investment in the Electricity Sector, being carried out by the Mexican government.

Energy demand grows in proportion to the urban sprawl of La Paz and poses a double problem for the local economy. On the one hand, energy is required for the operation of hotels and air conditioning systems in hot weather, while on the other, the side effects of generating electricity are slowly strangling the municipal government's treasury.

Data from the Mexican Institute for Competitiveness (IMCO) indicate that the economic and social costs of the *Punta Prieta* thermoelectric plant amount to US\$1 million, derived in part from the costs of climate change, the impacts on biodiversity, and diseases associated with poor air quality.

According to the IDB, the generation of electricity is the main problem for sustainability in La Paz, due to the anticipated increase in demand, which is predicted to be close to 6 percent a year.

"These patterns of generation and demand are worrying because the development model the city is betting on is based on tourism," said the agency in the analysis "La Paz, Sustainable City," created as part of its program of Emerging and Sustainable Cities.

For this reason, civil and business organizations pushed forward the renewable power project Aura Solar I, the first large power plant in the country to run on solar energy.

The plant was connected to the network in November 2013, and seeks to satisfy part of the energy demand of one of the regions with the highest solar radiation on the planet.

"The energy needs must be met in conformity with international norms for turning toward a low-carbon economy. The issue is not how to generate more energy, because it has already been shown that far from being sustainable this has caused major environmental and social consequences," says Agustín Bravo, coordinator of the Northwest office of the Mexican Center for Environmental Law.

For environmental specialist Bravo, the problem of negative economic and social effects caused by power generation comes from a development model that is not very sustainable, similar to what is happening with the tourism real estate model applied in Baja California Sur, which has failed in other parts of the world, for example in Spain.

According to a study by the ICF, most tourists to La Paz come to appreciate the environment, and for the sense of community and tranquility that exists in the region, which seems to pose a conflict with the model of mass, high-end tourism which is exploding in Baja California Sur.

So those like Bravo consider it necessary to make basic structural changes to introduce sustainable development as a common practice in public administration.

While the Inter-American Development Bank has promoted their first project of the Emerging and Sustainable Cities of Mexico program in La Paz, the preliminary analysis indicates that there is still a long way to go, both when it comes to energy issues and to the management of water and solid waste. Improving economic competitiveness, public transport, public policy, accountability, and efficient management of public resources also require much effort.

As long as the development model is not changed and renewable energy sources do not prove to be ready to support the region's steadily growing energy demand, the people of La Paz will have to get used to breathing toxic air and hope that tourists do not end up fleeing to another destination in order to safeguard their health.

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Solar farm responds to the growing demand for electricity, slows down contamination

By Talli Nauman*

LA PAZ

When dozens of community leaders met on November 14 in a public forum to exchange information and opinions on how to improve the quality of air in state's capital, one of their hopes rested on a new photovoltaic generating plant.

They were talking about the largest solar farm in Latin America and the first of its magnitude in Mexico.

Located a few miles from the Punta Prieta thermoelectric plant that emits a great deal of pollution over La Paz, the new *Aura Solar 1* plant will take advantage of the large number of sunny days available in Baja California Sur to supply the growing demand from tourism, and reduce the health threats inherent in the burning of fossil fuels.

The hope is that the plant will generate an amount equivalent to the electricity consumption of the entire population of La Paz, while at the same time eliminate the production of 60,000 tons of carbon dioxide each year. This will be accomplished by replacing old plants which will contribute to a reduction in greenhouse gas emissions.

In addition, the new solar plant will reduce the price of energy for the Federal Electricity Commission (CFE) in Baja California, and will not require government subsidies.

This is due in great part to the strategy of the International Financing Corporation (IFC), in promoting the expansion of renewable energy in Mexico and the rest of the world.

As a member of the World Bank focused on the financing of the private sector, IFC granted \$25 million and organized an additional \$50 million in credit from the development bank Nacional Financiera for the construction of the *Aura Solar 1*. The Mexican company Gauss Energía, which is controlled by the Mexican investment firm Corporación Aura Solar, is the beneficiary of this plan.

The photovoltaic plant heralds a new era for electricity generation under the "small producer" regulatory model and is financed under the "project finance model." It breaks with conventions by not leaving all of the energy generation to the CFE.

"*Aura Solar 1* represents the first step in an initiative that looks to become a platform for the development of more photovoltaic plants in Mexico under the 'small producer' and 'self-sufficiency' regulatory models," says Héctor Olea, president and general manager of Gauss Energía.

The center has already begun testing, having connected to the CFE's transmission network at the Olas Altas substation in La Paz. All that is left is the official inauguration by the Mexican president, a customary event with each expansion of the city's thermoelectric plant.

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Pedestrian space overrun by cars, Mexicali on road to ecological disaster

By César Angulo*

MEXICALI

The dismantling of the city's only pedestrian mall has generated public discontent in a city that suffers from deplorable air quality and which is heading down the road to urban and ecological disaster.

The administration of Jaime Díaz Ochoa, Mexicali's new mayor from the PAN party, eliminated a 200 yard long pedestrian corridor that had recently debuted for the enjoyment of Mexicali's families in the center of the historic capital city.

The pedestrian mall, identified as the first stage in the revival of the city's historical center, had an investment of US\$1.44 million in order to remove the asphalt roadway and replace it with a surface designed exclusively for pedestrians with integrated planters, benches, and shade. The new space created a venue for open-air cultural events which thousands of families were able to attend.

The only public works project in at least the last ten years dedicated to non-motorized mobility had a useful life of just four months; it was reopened to automobile traffic at the beginning of December 2013.

When it comes to air quality, Mexicali is one of Mexico's and the world's worst cities because of the excessive number of cars. It is estimated that there are at least 1.5 cars per inhabitant.

The dismantling of the mall without public consultation or advice from experts contradicts the recommendations of the Institute for Transportation and Development Policy (ITDP) that establishes priorities for urban mobility as follows: pedestrians first, then cyclists, followed by public transportation, cargo transportation, and finally cars.

The municipality of Mexicali has done things backwards: they have given special consideration to automobiles by diverting public investment earmarked for pedestrians.

According to a study from the Mexican Institute for Competitiveness (IMCO in Spanish), this is all happening in an environment where, since 2010, the metropolitan area has registered an average rate of 30 deaths per year related to the effects of air pollution, such as respiratory and cardiovascular diseases.

Meanwhile, reports from the World Health Organization points out that since 2008 Mexicali has been one of the world's top 20 cities with the highest average concentration of fine particulate matter (PM2.5), registering 51 $\mu\text{g}/\text{m}^3$ (micrograms per cubic meter); when international guidelines recommend a yearly average of no greater than 10 $\mu\text{g}/\text{m}^3$.

In the opinion of the IMCO, the capital city suffers from unacceptable air quality which has resulted in 283 deaths and more than US\$2.5 million spent on health care since 1990.

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Sonoran community and university collaborate on solar oven installation

*Photos and text by José Luis Juárez Ortega**

GUAYMAS

A community dependent on fishing and tourism in this municipality on the Gulf of California recently chose to install solar ovens to improve the quality of life.

The decision arises from discussions with university people about the benefits of renewable energy for sustainable development.

Since February 2011, the town has devoted itself to a service project called "Feasibility Study of Renewable Energy Sources in the Community of La Manga 1, Guaymas."

The project proposes a community development strategy based on appropriate technologies. It originates in the energy lab of the Department of Chemical Engineering and Metallurgy at the University of Sonora (Unison) campus in Hermosillo.

A multidisciplinary working group made up of sociologists and chemical, civil, and industrial engineers initiated the collaboration.

The methodological model known as Participatory Action Research (PAR) has encouraged involvement of the population.

The goal is that the people of La Manga 1 will acquire the necessary knowledge and organize themselves in order to achieve self-sufficiency in the use of renewable energy, both in their homes and community-wide.

To accomplish this, a feasibility study was first done to determine how to use renewable energy in this location. Next, tests were run with both commercial solar ovens and those made from recycled materials.

A participatory development diagnosis was made in order to identify local needs and to outline the demographic, socioeconomic, and cultural situations present in the community, as well as to identify the current state of housing, services, safety and health.

The feasibility study results led to the meeting of a task force composed of both community appointed leaders and Unison's multidisciplinary working group in order to discuss the town's situation.

They noted that even though La Manga 1 is a community fairly close to the urban development of San Carlos, in the so-called "new" Guaymas, it lacks basic public services such as drinking water, electricity, drainage, and healthcare centers.

This translates into a poor quality of life for its inhabitants and it leads to the conclusion that the appropriate use of solar or wind energy technologies might assure at least some improvement in their lives.

As a result, a group of environmental activists from the community agreed to organize a workshop for building solar ovens with recycled material.

Based on that workshop, Unison's multidisciplinary team is currently working on building solar oven prototypes and a solar water distiller that would be within reach of the community.

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Governors reach agreement to protect the Río Yaqui and exports

By Miguel Ángel Torres*

VICAM

The government of Sonora, headed by Guillermo Padrés, continues to steal water from the Yaqui River, continues to mock the order issued by the Mexican Supreme Court (SCJN) that would compel him to suspend activities on the Acueducto Independencia, and strikes a virtual death blow to the members of the Yaqui tribe, to the crops from this rich agricultural zone in the state's southern region, and to the area's biodiversity that exists because of the river's abundance.

This may seem an exaggeration, but one only has to look at the facts:

The plundering has occurred under the program known as Sonora SI (Sonora Integral System), a large public water and irrigation project, which began in 2010 with plans to transfer 2.65 billion cu. ft. (19.81 billion gallons) annually from the El Novillo dam in Hermosillo, which is fed by the Río Yaqui. The Independence Aqueduct was constructed to supply water for the industrial expansion created by the arrival of businesses such as Apasco, Ford, Tecate, Coca-Cola, Big Cola, and Pepsi. In response to the plan, representatives from the Yaqui tribe attended judicial tribunals where they were successful in securing all of their legal rights. Most importantly, they won a decision by the SCJN, which states that "the project's governing authority must declare 'null and void' the decision made on behalf of the federal authorities involved in the project as it relates to the Environmental Impact Statement issued February 23, 2011 during the S.G.P.A.-DGIPA, DG1633/11 proceedings." The gist of the SCJN's ruling was that the construction lacked an appropriate EIS and should be halted.

The order also compels the project to: 1. issue a new EIS that indicates whether or not the water rights of the Yaqui community would be harmed; and 2. hold a public consultation among the members of the tribe in order to determine if they would be adversely affected. If it were determined that they would be harmed, it orders authorities to compensate or minimize the actions that affect their survival, "even if it means reaching a determination that the project's operations be suspended." This means jettisoning the entire project and the aqueduct.

Because the Padrés administration ignored the SCJN's decision, the Yaqui tribe decided to blockade Federal Highway 15 between Mexico and Nogales, beginning last May. After 7 months, the Sonoran government is betting on the physical and political exhaustion of the Yaqui community, but results indicate otherwise.

In light of the power vacuum created by both the Sonoran and Federal governments, new actors have taken center stage, in this case the government of the neighboring state of Sinaloa, led by Mario López Valdez, and an organized civil society.

The Sinaloan governor met with the Yaqui Defense Brigade on December 14, 2013 in Vicam. López Valdez said that he traveled there with the consent of the administrations of both Sonora and President Enrique Peña Nieto, with the express purpose of acting, together with Sinaloan agricultural producers, as mediators. Their goals are: to develop a joint work agenda; to request a meeting with the Secretariat of the Environment and Natural Resources to review the Yaqui case; and to broker a deal that both provides solutions to the problem of water extraction and brings a truce in the highway blockade until January, thus preventing disruptions in the exportation of agricultural products from the state to the United States.

According to López Valdez, Sinaloa has 2% of the nation's population and 3% of its territory, while it produces 30% of the nation's food. About 40% of the salads that are consumed in the United States are made with ingredients from Sinaloa. It has annual earnings of a billion dollars and sends thousands of trucks to the border each day; thus the importance and interest in resolving the conflict soon.

For their part, the Yaqui Defense Brigade, led by spokesperson Mario Luna, points out that the tribe has 59,300 acres, of which 44,480 are in production, and that the extraction of 19.81 billion gallons of water a year would cause a loss of 24,700 acres of wheat, more than half of their current production capacity.

It is also a blow to their health and to the environment, Luna adds, because of the diversion of water that normally should recharge the aquifers. Aquifers are the only source of drinking water for the Yaqui, and because none of the Yaqui towns have potable water, all of the inhabitants use well water which contains, at minimum, harmful levels of arsenic and magnesium.

In environmental terms, the Mexican Center for Environmental Rights (CEMDA) points out that the project's construction would create changes in the hydrological patterns of the region, as well as negative effects for the wetlands that are fed by the rivers that are to be diverted. Additionally, the project puts at risk the Bavispe-El Tigre

Terrestrial Priority Region (Región Terrestre Prioritaria Bavispe-El Tigre) which is located in the Río Yaqui basin and the Río Yaqui-Cascada Basaseachic Hydrological Priority Region, both of which were designated as such by CONABIO, the National Commission for the Knowledge and Use of Biodiversity.

In what is now known as the Vicam Agreement, the Yaqui Defense Brigade and the governor of Sinaloa signed an accord establishing that on October 22, 1940, a decree by President Lázaro Cárdenas was published in the Official Diary of the Mexican Federation, restoring and giving title of the territory to the Yaqui tribe, as well as bestowing on them 50% of the river's water rights.

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Grassroots Bulletin on Sustainable Development in Northwest Mexico

All efforts in favor of air quality welcomed

By the Editors

When it comes to the struggle for environmental protection in the Gulf of California region, the issues of solid waste and toxic residues have historically taken a back seat to those of conservation and prevention of resource depletion.

This is probably due to the amazing biodiversity and beauty found in northwestern Mexico and the southwestern United States. Scientists and environmentalists tend to pay more attention first to protecting water, soils, flora and fauna before turning an eye towards toxic, radioactive, and infectious biological residues that emanate from chimneys and outflow pipes as a byproduct of the manufacturing, agricultural and service-sector production processes.

Fundamentally all of these environmental agendas go hand-in-hand. To point out an obvious example, the importance of air quality can't be avoided when talking about health or about tourism, since we depend on both of them for survival.

Efforts to safeguard the environment, regardless of focus or philosophy, coalesce under the banner of confronting anthropogenic climate change, stopping it, preparing ourselves for its impacts, and adapting ourselves to its consequences.

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Cora defend access to water and land in Nayar against threat of Las Cruces Dam

The Cora community refuses to accept the artificial reservoir in the San Pedro Mezquital River because it would inundate or endanger 18 sacred sites and would place conditions on their traditional cultural practices.

*By Agustín del Castillo**

PRESIDIO DE LOS REYES

This town's history is a case study in the *Nayeri* population's struggle with the Mexican State, be it be during the phase of the colonial government of the 18th century, the liberal of the 19th, or the versions born of the Revolution in the last century.

Today, reflected in the cobbled and dusty streets of this sweltering hamlet is the division caused by the latest government megaproject: the Las Cruces hydroelectric dam, with which the Federal Electricity Commission (CFE) is planning to dam the San Pedro Mezquital River in the ancestral territory of the Cora.

The proposal puts at risk up to 18 sites recognized as ancient and sacred that outsiders usually don't even try to understand.

The town itself is divided, first by the river, and then by the history of *mestizaje* (the integration of races or cultures). Almost all the *mestizos* (mixed-race) individuals, now with two generations behind them, are completely backing a project that promises thousands of jobs (the majority of these short-term), better infrastructure, social and health care assistance.

Historically from another age but geographically less than a half mile away across the river are the descendents of the original Cora people. Beyond their traditional suspicion and mistrust, the Cora see the artificial reservoir as heralding the destruction of part of their world, yet one more step in the prolonged death of a culture whose mountain villages no longer are the impenetrable frontier they once were.

Across the gentle and fertile valleys of the Nayarit coast, where artisanal fishermen live off of the resources of the National Wetlands delta, a highway, still incomplete, passes westward through Estación Ruíz towards the mountains of the Gran Nayar. This is the route to Presidio de Las Reyes and the indigenous community of San Pedro Ixcatán, one of the nine towns that comprise the Cora world.

Because of its proximity to the grasslands, there is a strong constituency of farmers who have settled here and hold agrarian rights. They are not always in favor of local interests, which has resulted in conflicts, such as one this past October 12.

"The Federal Electricity Commission has taken advantage of this in order to try to divide us; they promise everything but it is conditioned on a 'yes' vote. And if that doesn't work, they fabricate agreements, meetings, and a whole string of tricks with the help of the Agrarian Procurator's Office (PA) and the state government," points out the delegate for the Nayeri Indigenous Council, Julián López Canaré.

"A megaproject like this expropriates a large quantity of land that is part of our ancestral territory, which is in itself very small given all of the past invasions. But it is also an attempt to privatize the water. We believe that for our culture to have continuity we need to decide for ourselves how to utilize our land and to debate what we think development should be," he adds.

The Cora community has known of the project since 2008, and yet it was only in recent months that their representatives received an offer to discuss a formal agreement.

After long consultations with those in the mountains, and with academic allies and civil society, the indigenous authorities decided to say "No" on April 7, 2013.

The pushback was strong: on April 14, government supported organizations and the PA attached the signature sheets of voters from the meeting, and with their *mestizo* allies (not all of them) granted permission to continue exploration work of the San Pedro River. The payoffs were obvious, but just to name one example, thirty vials of scorpion anti-venom that had been delivered to the local clinic disappeared after three days, "well they told us that it was needed elsewhere," said one inhabitant.

The PA's resident in charge, Rómulo Pérez Cruz, admitted that they couldn't actually certify the meeting since it

lacked a quorum: according to the National Agrarian Register, San Pedro Ixcatán has 920 members with current rights, but it turned out that 515 dead people still appear as voters.

In what might be described as a Kafkaesque trail of events, the 515 had been repeatedly sanctioned for being absent over the years since the *ejido* community initially registered. Then, after some time, their continued absence was ignored and they were put back on the rolls. But there's not a sign of their souls. "The CFE will use anything," warns Jorge Alberto Avalos, professor of Tuxpan.

The area's rough terrain permitted the Cora to resist the European conquest for two centuries. But today, when engineers have discovered the ideal conditions in these mountains for producing electricity because of a 607-foot drop in elevation, this same mountain backdrop seems to be changing the direction of a destiny that almost never has been promising for the Cora.

And not only is it a matter for the Cora. The future of fishermen upriver in the estuaries of the National Wetlands is also at stake. For them, the dam implies the loss of the equilibrium in the contributions of fresh and salt water; a disruption in travel corridors for mountain species, and the death of the mangroves which are the cradle of biodiversity.

**Reporter for El Milenio Jalisco, Winner of the 2010 Walter Reuter Prize for Journalism and Reuters-IUCN Regional Prize 2008 for Excellence in Environmental Journalism*

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All efforts in favor of air quality welcomed

By the Editors

When it comes to the struggle for environmental protection in the Gulf of California region, the issues of solid waste and toxic residues have historically taken a back seat to those of conservation and prevention of resource depletion.

This is probably due to the amazing biodiversity and beauty found in northwestern Mexico and the southwestern United States. Scientists and environmentalists tend to pay more attention first to protecting water, soils, flora and fauna before turning an eye towards toxic, radioactive, and infectious biological residues that emanate from chimneys and outflow pipes as a byproduct of the manufacturing, agricultural and service-sector production processes.

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