REASONS FOR THE NONVALIDATION OF CER'S FOR HP PEDREGALITO

The Piedra (or Chico River) is of an immense emotional value for the "chiricano". It constitutes the symbol of strength and independence of this province. It is a symbol for the chiricanos as is the Barú Volcano (3,475 Mts.asl).. From which this stormy river tumbles own. The river basin of the Piedra (or Chico) River is one of the most important ones as much due to its ecological value with its numerous endemic species, as by its vital economic, cattle raising or farming importance of the province of Chiriquí and Panama. The Rivers that flow into it are the Macho de Monte, the Bregué, the very own Piedra River and the Chuspa River, and innumerable streams.

We had not appreciated until now the magnitude of the indiscriminate intervention of man in the natural resources of the province until the moment in which we noticed the grotesque canalizations of our beloved Piedra River. Called project Pedregalito 1 (Panama Power Holdings), and Pedregalito 2 is due to come next, visible from the bridge of the Pan-American highway of the Piedra River in Boquerón, Chiriquí. From this mentioned bridge product of phenomenal and impressive swellings where they are inclusively heard and are *felt* resounding of the enormous stones that are transported from the high mountain and slopes of the Volcano in their inexorable passage towards the sea. All of us remember the past images of the fury of the Caldera River in Boquete November 2008. But then in the Piedra River these scenes are "pure routine" being the Piedra River not only the swiftest river of Panama, but also among the three swiftest rivers of the American hemisphere. Luckily major towns do not exist (like Boquete) in their shores. What sadness produces us nowadays when crossing through this bridge over our spectacular Piedra River we find a devastating sight resembling a lunar landscape. With this I do not want to demerit a precious river which it once was. But the greed of man and speculators does not have limits.

We all knew the Piedra River those that have lived in Chiriquí, which is characterized by its great force and speed. Perhaps some have bathed in its clean waters and its strong current. Or perhaps we have ventured ourselves to fish in it or to "shrimp fish at night". We always amused ourselves venturing in great tractor tubes. Unfortunately it was "discovered" far behind schedule by "river rafters" because the "fever" of the hydroelectric plants has ruined this novel tourist business.

All this before they tied down the Piedra River as a giant "Gulliver" with a series of supposed mini "hydroelectric" plants from its high course to see the article "taming the Chico River" in La Prensa (http://mensual.prensa.com/mensual/contenido/2008/06/15/hoy/pdf/Nacionales.pdf). The construction of this series of dams for the supposed "floods control" is attributed. But no one has stopped to think that the floods as spectacular as they are for this river are a "normal" phenomenon. At present inclusively an informal economy exists, which consists in the extraction of stony non-metallic materials, of volcanic origin product of these natural floods in which the river works as "conveyor belt" which moves incredible volumes of materials of finest quality used in the industry of the construction. Including the very own Construction Company "Bagatrac" which owns a quarry of materials on the shores of the river and also objected in first instance to the construction of such hydroelectric project. This natural and economic process which benefits in the first place the "paleros" and inhabitants from the communities is interrupted by this series of hydroelectric plants, above all the PH Pedregalito. We ask what these gentlemen hydroelectric entrepreneurs will do with similar volumes of stony material that will be accumulated in their dams? Will it be then an *additional* business for themselves to the detriment of the communities?

It is possible to be argued that the dams will avoid floods. But in the case of Boquete the past year the massive and sudden water flow accompanied by stones and trees forced the personnel of the engine houses of Estrella Los Valles and Estí plants to open their floodgates to avoid major damages to their turbines and their own dams. The sudden water volume flowed through areas that were dry for decades, indeed placing in danger property and persons who trusting in the dams had settled themselves down in these areas.

The Piedra River being a river of great power and with a record of great swellings, in case of breakage of the structures of these plants can place in serious dangers entire adjacent populations (Pedregalito, El Tejar, and Sitio Lazaro). These disasters already have happened in other countries, and rivers less powerful than the Piedra (there is the example of Represa Cariblanco in Costa Rica where a water swelling left unusable the engine house of this dam). http://www.youtube.com/watch?v=ewQJG4sKujI Or in the past year the hydro-plant in Paraíso, as the one of Hidro-Concepción on this same Piedra River (or Chico) have undergone the attack of its spectacular swellings having sustained considerable damages.

These dams altogether prevent the free flow of sediment. The sediment fertilises the Earth, the sediment transports sand and stones, vital for the construction industry. It is not a secret that the sands of beaches come from the rivers. The estuaries, beaches and coastal lines disappear not as much by the well-known global warming and sea level elevation, but by the lack of sediment that constantly fills with sand their beaches and by the constant erosion of the sea and the action of the waves and tides. Having no sand the propagation of the turtles (at the moment in danger of extinction) will be affected in greater degree. Areas of tourism: (ex. The Barqueta Natural Preserve) will be affected with their beaches disappearing with their consequent lack of employment and of income.

By being diverted off these waters no longer will reach the estuaries to move salt water towards the sea. With time the ground and the very own water table next to the coasts will become salinized by the capillary or sponge action. That in the absence of fresh water will leave as a result great extensions of sterile land incapable of producing a single straw of grass like deserts of Sarigua (well-known man-made desert of Panama) of the 21st century. The eventual effects in the mangrove swamps as in the coastal farming fields are already becoming visible. At this moment, the mouth of the Piedra River can be walked across. While not being able to wash salt water of the sea with the customary force, the appearance of the "saline wedge" in the mouth of the Piedra (or Chico) River is evident. The farmers of the coastal zone have already complained a poor rice harvest this year. What could be the true reason?

The great dams as well as the "mini hydroelectric plants" constitute in themselves an insurmountable barrier for innumerable species that complete their life cycles in the total course of the river (and considering that none of these surpasses 10% of the "assumed" ecological volume). In this case those that still are in construction, like those that are already finished in the Piedra River. Those that are in the lower course cannot climb to the high course and those of the high course (generally the young) do not survive the passage by the turbines to the lower course. These species are condemned to inevitable extinction. Including small water stairways that have been constructed in countries as Canada and the US to allow the passage of these fish as salmon to reproduce. These have not always have been sufficient and effective and some dams in those countries have been seen already in the necessity to uninstall them indeed for harming the fishing industry.

In economic terms, in the absence of great dams the proliferation of mini hydroelectric plants along the length of a river is perhaps even more detrimental for the ecology of a river and its communities and their activities than the creation of a single great dam. For life and species of the river their dangers multiply, the phenomenon of "fragmentation" is accentuated, their probabilities of survival are reduced to a minimum, ensuring their virtual extinction. Put in another manner living rivers will turn into dead rivers.

Panama that for lack of advanced environmental laws, which do not take into account waters for the communities and true ecological volume required to assure the survival of the species, has been object of unscrupulous economic interests. With the "laughable" ecological volumes left by this company. In this case smaller than even 10%, rather in the 7% order (*40m3 ps flow/2.63m3 ps ecological flow*). There will not even be possible the survival of the migratory species that complete their life cycles from the mangrove swamps, to the middle and high course of the river. Much less fulfil the needs of the communities. Already the agricultural irrigation project Remigio Rojas has been seen affected by the sensible loss of the volumes of water (attributable to the hydroelectric plants) in recent dates.

Nobody discusses that such hydro-projects will stop generating CO_2. But we ask at what cost? Ecological costs with the inexorable extinction of native and endemic species to the river, fish and shrimps. And economic, affecting agriculture by the possible salinization of soil, subsoil and coastal water table, while introducing itself the most feared *SALINE WEDGE* originating from the sea. And the affectation to the mangrove swamps and the marine life that co-inhabit in it, with the terrestrial species which form part of their ecosystem and nutritional chain. It would be preferable to employ the solar alternatives (Panama is tropical country 9 degrees latitude north and counts with sun the 365 days of the year). And aeolic (we are constantly subjected to trade winds). Including tide power, the Pacific Ocean counts with differential of tides up to 20 feet, twice a day). These options would have a much smaller impact to the environment, the ecology and would impact positively in the communities.

There absolutely do not exist guarantees that these companies will revert the payments for environmental services and CER's back to the community as it is the objective in the first place and not use them themselves to make up for their commitments. Contrary to what the company report reveals great number of permanent jobs will not be created subsequent to the construction. But rather traditional permanent jobs will be subtracted from the communities, because the hydro-project will put an end to the stone extraction and the activities of the "paleros". Also the line of agriculture after seeing themselves affected by the inevitable loss of coastal lands suitable for agriculture, in the same way will have a decrease in the offer of jobs to the community. At this moment it is not either possible to quantify the impact that these dams will have in the fishing industry.

In Panama the correct approach in regards to the efficient use of energy does not exist. Instead of building 100 hydroelectric plants wouldn't it be better to stimulate programs of power saving at the national level? Incentivating those homes or public service companies with fiscal incentives so that they look for efficiency and energy economy instead of stimulating consumption? But apparently for some, this is not where the "business" is. Instead of spending so many millions in hydroelectric plants, to promote buildings (E.I., with solar panels) that do not require to connect themselves to the grid (they do exist) but generate its own electric flux by themselves. Any surplus would be placed into this very same energy grid.

The own National Authority of the Environment (ANAM) as the CATHALAC have sponsored in the past environmental experts to impart their lessons. Among these was Engineer Juan Manuel Diez Hernandez PhD. Forest engineer (Eco-hydraulics). According to the Ing. Diez Hernandez each river is like a person, all are different. There are rivers that can be dammed and even rivers exist that should *not* be dammed. Some will have major load capacity, others not.   The new concept of "modern ecological volume" to see IFIM, (Instream Incremental Flow Methodologies) and PHABSIM (Physical Simulation Habitat System) lies far from what is used at the moment with its residual static minimum of 10%. It is comparable to placing an entire family within a bathroom of a house. It is possible that all would fit at a certain time. But with time this situation becomes untenable, for the species and more so for the communities.

At first the company negotiates with the communities and these in first place determine their water needs. Then soon with the cattle dealers and farmers and later the recreational and tourist uses are taken into account and the suitable levels so that the fish and the aquatic species can move freely by their waters. Finally the communities determine a number (perhaps E.I. 40 or 50%), and offers this to the company if such proportion serves their purposes to generate electricity. Apparently the order of the factors has been reversed here, they have placed "the cart in front of the oxen". In Panama to this date there has not yet been performed a serious and scientific study of river basins. And according to our appreciation and as the previously quoted engineer, among the rivers that should not be dammed above all, for all the reasons explained and for all of the services offered to the community and to nature itself, would be precisely the Piedra or Chico River.

David, October 2, 2009

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