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## **The Environmental Impact Study of La Puya “is the worst I’ve seen in 42 years”**

BY [NATASHA DA SILVA](#) on [JUNE 22, 2014](#) · ( 0 )

An enlightening interview with Dr. Robert Moran, American hydrologist and geochemist reveals some of the detrimental effects of the Minero Progreso Derivada II project on La Puya and the surrounding areas. The interview was originally published in Spanish by [Plaza Pública](#). Translated by [Natasha da Silva](#).

The American hydrologist and geochemist Robert Moran has reviewed the **[Environmental Impact Study](#)** produced for the Minero Progreso Derivada VII project, one of the twelve parts of the El Tambor mining project located in the community of La Puya, between the municipalities of San José del Golfo and San Pedro Ayampuc and owned by the Guatemalan mining company EXMINGUA. It was approved by the Ministry for the Environment on May 23rd 2011. According to the expert, the study is “unacceptable”. In his 42 year career, he claims that, “it’s the worst thing” he has ever had to review.

Robert Moran has inspected mining projects all over the world. He has worked for the Auditor General of Colombia, he has evaluated projects in Dakota and Arizona, Alaska, Russia and Cajamarca (Peru), as well as for organisations in Mongolia, Kyrgyzstan, and Indonesia. He most recently worked in Guatemala on [an evaluation](#) of the Environmental Impact Study (EIA by its Spanish acronym) of the Minero Progreso Derivada VII project, which was used as the basis for the Government to grant the mining licence to EXMINGUA.

Among the motives exposed in this interview, he talks about the fact that there is no accurate data on the current water conditions or mining deposits, and that the samples taken were not collected or preserved correctly. What’s more, he points out issues that should not have been ignored by

the Ministry for the Environment, and that the impact study contains false information. He explains that in one section of the study, it mentions that there is no acid drainage, whilst another section indicates that the material to be extracted contains **arsenopirite** which, due to chemical reactions, expels the acids that lead to such drainage. He concludes that the Ministry for the Environment should never have approved this study.

In order to understand it, the expert approaches key subjects on how work is carried out in a mine, how the minerals are extracted, what chemical reactions lead to the formation of polluting compounds, how gold is separated from the compounds that accompany it, as well as how the way that water is used to operate the mining project reduces the quantity of liquid in nearby water sources. Arguments which have been presented by the resistance settlers of La Puya from the outset.

### **What is the basis for your claim that the Environmental Impact Study carried out for the Progreso Derivada II mining project is unacceptable?**

The Environmental Impact Study is mostly bullshit. In order to be of any use, a study of this type must contain real data, a baseline. There is no real data in it.

### **What data are you referring to?**

If you want to predict whether the mine will have impacts in the future, you have to know something about the current conditions. The following questions must be answered. What's the chemical composition of river water now? What's the chemical composition of the well water now? What's the chemical composition of the main mineral ore to be extracted? What's the chemical composition of the tailings (i.e. the mine waste)? How much water is there? And this data must be statistically useful. The impact study does not provide any quantitative data. So now they can basically say anything. In all countries – in the USA, Canada and Australia, this type of information must be presented and it must be based on quantitative sampling. The other problem is breaking up the study into parts. What these companies are playing at with these impact studies is basically contracting a group of consultants over whom they have control, and dividing up the study into small sections, without ever integrating the findings of these sections. In general, it's largely useless.

### **In the study, you say that this mine will combine open cast and underground mining. What does this mean and what problems would you expect as a result?**

The most suitable term for the first type is "open-pit", which is a more technical term. Since mining companies want to do everything as cheaply as possible, they extract from the surface, which means that they simply blow out the rock with explosives and remove it from the surface, using enormous machinery. This creates a huge "pit", which is why it's called "open-pit" mining.

But obviously, this leads to fractures and faults, so water starts to flow within the quarry (the pit).

The water then has to be pumped out as they can't work beneath... and the water begins to get contaminated. And since they are pumping it out, the level of the ground water diminishes. The level of the water sources also tends to drop. This means that some wells and springs will dry up. In the study, they state that there are faults and fractures but that it doesn't matter. Which of course is madness! It is not true.

### **Why is it important that this is mentioned in the EIA?**

Wells are usually bored into the sand, and the water contained in that sand is known as aquifer – the water is found between sand grains. However, in La Puya, most of it is solid rock. In the solid rock, the water moves into the fractures and faults. The water is connected from one place to another via those faults and fractures. This means that if they start building a pit or a tunnel in one place, then all of the water would be extracted, but that water is connected to areas where other people have wells and as a result, those people are left without water. In the study, I spoke of the quantity of water that they need to use. So by having use all of that water, they are competing with all the locals for it.

[According to the EIA, 154.8 cubic meters will be extracted per day to run the plant and 4.8 for human consumption. Total per day = 159,600 litres/per month = 4,788, 000 litres per year = 57,456,000 litres/per 5 years = 287,280,000 litres (shelf life of the mine calculated in 5 years)/per 25 years = 1,436,400,000 litres (years of licence duration)]

### **And that water could also be contaminated with arsenic...So later, you naturally get the chemical issue with the waste starting to expel acid, because you have to remove the rock from the pit?**

And most of it is simply waste. They pile up the remaining waste around the edge in such a way that the rain falls on it, causing polluting agents to be released.

### **How does this process occur?**

One of the most common problems of gold and silver mines like this one is that when extraction begins, the water, air and bacteria begin to interact with the extracted rock, and acid leakage or seepage begins to occur. Acidic water is released and then the acid begins to dissolve the entire remainder in the rock. The authors of the EIA state that there will be no problems with acidic water. Yet in another section of their study, they say that the rock contains an elevated **pyrite** concentration.

### **And these pyrites generate the acid?**

Yes. Two types of pyrites are mentioned. It says that they are arsenopirites; the arsenic content in the pyrite which is iron sulfide; so the pyrite is what interacts with the water, air and bacteria to form acid and causes other compounds to be released, such as arsenic, copper, lead, zinc, etc. A

large number of metallic elements, which in similar sites are usually radioactive. And the authors also say, in another chapter of Environmental Impact Study, that there is also chalcopyrite, which is simply the copper content of the pyrite. On building these installations, they expose the mineralised rocks, which then come into contact with the rain and air and begin to form acid. The problem is that when you look at the chapter on the water, it says that there is no risk of acid forming, which is a lie. However, as they never integrated the data from one chapter to the next, there is no way of understanding the real conclusions.

### **So what does the environmental impact study say?**

That there is no problem. And the worst thing is that they don't provide any data. They don't provide data on the chemical content of the rock that will become waste, nor on the rock that will become the ore – or the mineral. Without that information, the general public, the regulatory bodies and the potential investors will never really know what the real problem is. Basically, they have hidden the most important information.

### **So these elements could be mixed with rain and water and reach the aquifers?**

Not exactly. The rain will fall on the waste and due to the reaction of the rain water, the air and bacteria present in the rock and water, a complicated set of reactions occurs which releases those contaminants. And with the leakage and seepage, they can reach the groundwater or the surface water. It also means that the waste can be activated from the waste rock. Precipitation will then release these compounds into the environment.

### **I'd like to know if this water will reach the city and if the people of the city could also have problems with this water.**

I don't remember all the details of how far it is. In theory, it could reach the rivers and if the rivers reach the city, then yes, there could well be problems. But what I'm talking about here is more of a local and regional nature.

### **Your study mentions the sampling of the water quality which was only done once, but you indicate that it's not the correct way of doing it.**

There are serious problems with that. First of all, if I remember correctly, they did not perforate wells, so we practically don't know anything on the chemical composition of the groundwater, which is really very important. Secondly, they collected water samples in seven places, but they don't mention how they took the samples nor what preservatives were added to them. In order to take a sample properly, so that its chemical composition does not change until once it has reached the laboratory where it will be analysed, an acid must be added, which is generally a special type of nitric acid. There is no discussion whatsoever of the sampling nor of the preservation of the samples. Initially, this tells me that those that carried out the sampling were either totally inexperienced, or looking to hide something.

## **And what do you think they're trying to hide?**

We know, for example, from previous samples, that there are high concentrations of arsenic, but they could be much higher if the samples had been prepared correctly. This means that if the appropriate preservative had been added, it would have revealed the presence of cadmium, or antimony, zinc, copper, etc. But without the correct preservative, these compounds are either decanted at the bottom of the bottle or they stick to the walls, and as a result, they are not analysed.

## **What's the problem with arsenic in the water?**

There are probably many other compounds that are also causing problems. It's not just the arsenic but because the data is so scarce, we can't be certain. As for arsenic, it causes various health problems related to the skin, cancer, etc., I don't know all of the details. But another huge problem is that it's not possible to take a sample from just one point and assume that will suffice. They should have taken samples of the surface water every month, for a whole year. They should have constructed their own wells and taken samples from several local wells, and added the preservatives to the samples, but none of that was done.

## **According to conversations I heard when I visited the place, the neighbouring communities of San Pedro Ayampuc and San José del Golfo are worried about cyanide. What's the issue with cyanide and where is it found?**

Unfortunately that's very, very complicated. Politically-speaking, it's even more complicated because the company said that they weren't going to use cyanide, but they are not providing any reliable evidence. I suspect that they were lying.

## **Why?**

Given the way that the report is written, it basically indicates that they can do whatever they want in the future. Then I suspect that they may well use cyanide, but it's not known for certain. Cyanide is a chemical compound that adheres to almost any other compound, permanently to any metal. It's used all over the world to combine it with gold and silver and all other common metals found in rock, and that's how gold and silver are separated from the other metals. However, the chemistry of that process is extremely complicated. Cyanide was used and is still used in executing criminals in prison. Cyanide was also used in concentration camps in Germany and Poland. In other words, this is the chemical compound used to execute people. When used in a mine, it changes form, yet some of the forms that it separates into, are somehow toxic for the animals and fish. In this case, it is therefore not just the issue of human health that we ought to be worried about.

**Basically, cyanide would be used to separate the gold from the other components that appear together in the rock.**

The gold and the silver.

**But will they separate the gold and silver from the other minerals here in Guatemala?**

What I understand is that they're going to extract the rock and send the concentrate abroad for processing. That's the problem. Another reason that the study would not be acceptable in most developed countries is its ambiguous language. In one part they state that "we are going to extract the gold and silver from the ore and we are going to form a concentrate, and we will probably send it to another country to be separated". However, elsewhere they give the impression that in actual fact, they're going to carry out both the extraction and the separation in Guatemala, including the mention doré bar production, but it isn't clear! Doré is generally made from gold and silver.

**This means that in some parts of the study, they do indeed state that they are going to make Doré here in Guatemala...**

Yes, and in other part it says something else.

**And in the process of producing that Doré in here Guatemala, they will probably use cyanide.**

According to my experience, yes.

**You also mention that the fact that they say they will only work for five years is suspicious.**

Indeed. That sound suspicious to me. It doesn't seem economically viable. What they will probably do is to build the plant and maybe remove the ore from the pit and the tunnels, but also from other nearby locations. More importantly, they won't just have an impact on the water, the environment and the nearby inhabitants of La Puya – they will also have the same impact on those other nearby locations in the neighbouring communities. As there would be other pits and tunnels. And they haven't made any assessments... They act as though it's one single project.

**But it doesn't make sense for a mining project to only run for five years, given all the economic investment you would expect to be involved.**

For me, no, it doesn't make sense.

**Nothing is clear from the study...**

And, obviously, they do that deliberately. But the Ministry for the Environment should have raised all these important questions.

**So the Ministry for the Environment should not have approved this study?**

No. They should never have approved it. In Peru, there was the exact same problem in the

**Conga** project. The Peruvian Ministry for the Environment secretly approved the permit for Conga, then later under the administration of another president, the same Ministry criticised it, but the second report was kept secret. So this is the problem – nobody from Ministry for the Environment has critically reviewed this study.

**And do you consider it to be legal to approve it?**

No, I don't, but that's something for the lawyers to determine. The only thing I can say to you is that it goes against the interests of the Guatemalan people.

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